Simplicity® MASSEY FERGUSON LAWN & GARDEN EQUIPMENT AGCO LAWN & GARDEN EQUIPMENT

OPERATOR'S MANUAL

Legacy XL / 2000 / 2900 Series

27HP* Hydro Tractors & Mower Decks

Mfg. No.	Description
2690351	Legacy XL, 27HP, 4WD
2690352	Legacy XL, 27HP, 4WD
2690296	Legacy XL, 27HP, 4WD & 60" Mower
2690298	Legacy XL, 27HP, 4WD & 54" Mower
2690297	Legacy XL, 27HP, 4WD & 60" Mower
2690299	Legacy XL, 27HP, 4WD & 54" Mower
2690304	Legacy XL, 27HP, 2WD & 60" Mower
2690305	Legacy XL, 27HP, 2WD & 54" Mower
2690353	Legacy XL, 27HP, 2WD & 48" Mower
2690302	Legacy XL, 27HPLC, 2WD & 60"Mower
2690303	Legacy XL, 27HPLC, 2WD & 54"Mower
2690300	Legacy XL, 27HPD, 2WD & 60" Mower
2690301	Legacy XL, 27HPD, 2WD & 54" Mower
2690306	Legacy XL, 27HP, 4WD, 3P & 60" Mower
2690307	Legacy XL, 27HP, 4WD, 3P & 60" Mower
2690349	Legacy XL, 27HPLC, 4WD
2690350	Legacy XL, 27HPLC, 4WD
2690292	Legacy XL, 27HPLC, 4WD & 60" Mower
2690294	Legacy XL, 27HPLC, 4WD & 54" Mower
2690295	Legacy XL, 27HPLC, 4WD & 54" Mower
2690293	Legacy XL, 27HPLC, 4WD & 60" Mower
2690346	Legacy XL, 27HPLC, 4WD, 3P
2690347	Legacy XL, 27HPLC, 4WD, 3P
2690284	Legacy XL, 27HPLC, 4WD, 3P & 60" Mower
2690286	Legacy XL, 27HPLC, 4WD, 3P & 54" Mower
2690285	Legacy XL, 27HPLC, 4WD, 3P & 60" Mower
2690287	Legacy XL, 27HPLC, 4WD, 3P & 54" Mower
2690344	Legacy XL, 27HPD, 4WD, 3P
2690345	Legacy XL, 27HPD, 4WD, 3P
2690288	Legacy XL, 27HPD, 4WD, 3P & 60" Mower
2690290	Legacy XL, 27HPD, 4WD, 3P & 54" Mower
2690448	Legacy XL, 27HPD, 4WD, 3P & 60" Mower
2690289	Legacy XL, 27HPD, 4WD, 3P & 60" Mower
2690291	Legacy XL, 27HPD, 4WD, 3P & 54" Mower
2690423	Legacy XL, 27HPD, 4WD, 3P & 60" Mower (CE)
2690310	Legacy XL, 27HPD, 2WD & 54" Mower (CE)
2690382	Legacy XL, 27HPD, 4WD, 3P (CE)
2690308	Legacy XL, 27HPD, 4WD, 3P & 54" Mower (CE)
2690309	Legacy XL, 27HPD, 4WD, 3P & 54" Mower (CE)
2690314	2027, 27HP, 4WD & 60" Mower
2690315	2027, 27HP, 4WD & 54" Mower
2690364	2027, 27HPLC, 4WD
2690313	2027, 27HPLC, 4WD & 60" Mower
2690365	2027, 27HPLC, 4WD, 3P
2690312	2027, 27HPLC, 4WD, 3P & 60" Mower
2690387	2027, 27HPD, 4WD, 3P & 54" Mower (CE)
2690388	2027, 27HPD, 4WD, 3P & 54" Mower (CE)
2690318	2927, 27HP, 2WD & 60" Mower
2690319	2927, 27HP, 2WD & 54" Mower
2690432	2927, 27HPLC, 2WD & 60" Mower (CE)
2690384	2927, 27HPD, 2WD & 54" Mower (CE)
2690366	2927, 27HPLC, 4WD
2690335	2927, 27HPLC, 4WD & 60" Mower
2690348	2927, 27HPLC, 4WD, 3P
2690316	2927, 27HPLC, 4WD, 3P & 60" Mower
2690317	2927, 27HPLC, 4WD, 3P & 54" Mower
2690354	2927, 27HPLC, 4WD, 3P
2690385	2927, 27HPD, 4WD, 3P & 54" Mower (CE)
2690390	2927, 27HPD, 4WD, 3P & 54" Mower (CE)
2690956	Legacy XL, 27HP, 2WD
2690957	Legacy XL, 27HP, 4WD
2690958	Legacy XL, 27HP, 4WD

60" Mower Decks

Mfg. No.	Description
1694398	60" Mower Deck
1694479	60" Mower Deck
1695059	60" Mower Deck

54" Mower Decks

Mfg. No.	Description
1694397	54" Mower Deck
1694478	54" Mower Deck
1694507	54" Mower Deck (CE)
1694509	54" Mower Deck (CE)
1695058	54" Mower Deck

48" Mower Decks

Mfg. No.	Description
1694432	48" Mower Deck
1694477	48" Mower Deck
1695057	48" Mower Deck

* Gross HP

(Additional models listed on following page)

1726893
Revision J
Rev. Date 11/2011

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(Models continued)

Mfg. No.	Description
1694641	Legacy XL, 27HP, 4WD
1694644	Legacy XL, 27HP, 2WD
1694650	2027, 27HP, 2WD
1694653	2927, 27HP, 2WD
1694645	Legacy XL, 27HP, 4WD, 3P
1694640	Legacy XL, 27HPLC, 4WD
1694643	Legacy XL, 27HPLC, 2WD
1694649	2027, 27HPLC, 4WD
1694669	2927, 27HPLC, 4WD
1694864	2927, 27HPLC, 2WD
1694638	Legacy XL, 27HPLC, 4WD, 3P
1694648	2027, 27HPLC, 4WD, 3P
1694652	2927, 27HPLC, 4WD, 3P
1694642	Legacy XL, 27HPD, 2WD
1694647	Legacy XL, 27HPD, 2WD (CE)
1694792	2927, 27HPD, 2WD (CE)
2690956-01	Legacy XL, 27HP, 2WD
2690957-01	Legacy XL, 27HP, 4WD
2690958-01	Legacy XL, 27HP, 4WD

Table of Contents

Safety Rules & Information 2
Identification Numbers 7
Safety Decals 8
Safety Icons 9
Safety Interlock System 9
Features & Controls 10
- Control Functions 10
- Parking Brake Function 12
- Automatic Controlled Traction 12
- Dashboard Display Functions 13

Operating the Tractor 14
- General Operating Safety 14
- Slope Operation 14
- Adding Fuel 14
- Starting the Engine 14
- Stopping the Tractor & Engine 15
- Driving the Tractor 15
- Mowing 15
- Mowing in Reverse 15
- Attachment Operation in Reverse 15
- 4-Wheel Drive Operation 15
- Pushing the Tractor by Hand 16
- Hydraulic System Functions 16
- Optional 3-Point Hitch Operation 18
- 540 Rear PTO Operation 20
- Mower Deck Removal & Installation 22
- Attaching a Trailer 24
- Storage 24
- 12 Power Outlet 24

Regular Maintenance 25
- Maintenance Schedule 25
- Engine Maintenance 26
- Clean Debris Out of Engine Compartment 26
- Clean Engine Oil Cooler or Radiator 26
- Clean Transmission Oil Cooler 26
- Check Engine Coolant Level 26
- Change Engine Coolant 27
- Change Fuel Filter 27
- Drain Fuel Separator 28
- Check Transmission Oil Level 28
- Change Transmission Oil and Filter 29
- Check Front Axle Oil Level 29
- Check Mower Deck Gear Box Oil 30
- Safety Interlock System Check 30
- Blade Brake Check 30
- Check Tire Pressures 31
- Battery Maintenance 31
- Lubrication 32
- Servicing the Mower Blades 34

Troubleshooting, Adjustment & Service 36
- Troubleshooting the Tractor 36
- Troubleshooting the Mower 37
- Seat Adjustment 38
- Brake Adjustment 38
- Headlight Replacement 39
- Taillight & Dash Light Replacement 39
- Battery Charging 39
- Mower Adjustments 40
  - Roller Bracket Adjustment 40
  - Gauge Wheel Adjustment 40
  - Leveling the Mower 41
- Mower Belt Replacement 42
  - 60” Arbor Drive Belt 42
  - 54” Arbor Drive Belt 43
  - 48” Arbor Drive Belt 44

Specifications 45
Parts & Accessories 46
Warranty 47

NOTE: In this manual, “left” and “right” are referred to as seen from the operating position.

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Safety Rules & Information

Operating Safety

Congratulations on purchasing a superior-quality piece of lawn and garden equipment. Our products are designed and manufactured to meet or exceed all industry standards for safety.

Power equipment is only as safe as the operator. If it is misused, or not properly maintained, it can be dangerous! Remember, you are responsible for your safety and that of those around you.

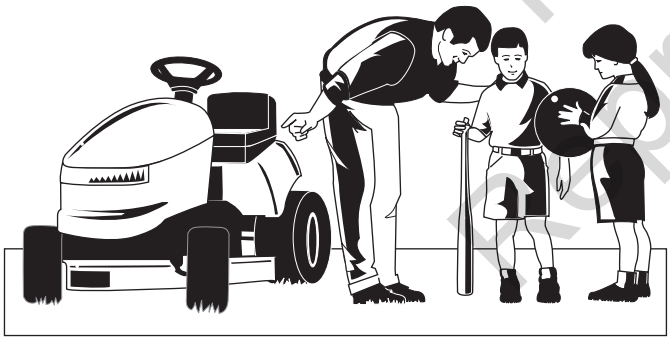
Use common sense, and think through what you are doing. If you are not sure that the task you are about to perform can be safely done with the equipment you have chosen, ask a professional: contact your local authorized dealer.

Read the Manual

The operator's manual contains important safety information you need to be aware of BEFORE you operate your unit as well as DURING operation.

Safe operating techniques, an explanation of the product's features and controls, and maintenance information is included to help you get the most out of your equipment investment.

Be sure to completely read the Safety Rules and Information found on the following pages. Also completely read the Operation section.



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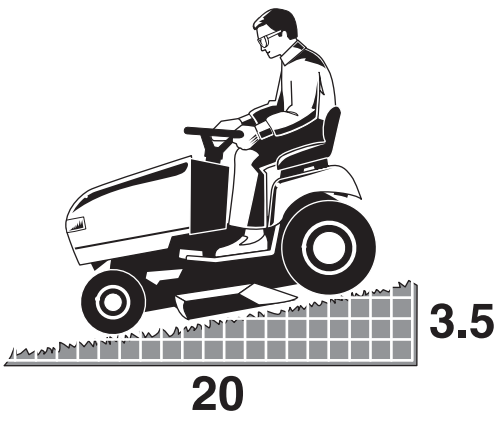
Children

Tragic accidents can occur with children. Do not allow them anywhere near the area of operation. Children are often attracted to the unit and mowing activity. Never assume that children will remain where you last saw them. If there is a risk that children may enter the area where you are mowing, have another responsible adult watch them.

DO NOT GIVE CHILDREN RIDES ON THIS UNIT! This encourages them to come near the unit in the future while it is running, and they could be seriously hurt. They may then approach the unit for a ride when you are not expecting it, and you may run over them.

Reverse

Do not mow in reverse unless absolutely necessary. Always look down and behind before and while traveling in reverse even with the mower blades disengaged.



Slope Operation

You could be seriously injured or even killed if you use this unit on too steep an incline. Using the unit on a slope that is too steep or where you don't have adequate traction can cause you to lose control or roll over.

A good rule of thumb is to not operate on any slope you cannot back up (in 2-wheel drive mode). You should not operate on inclines with a slope greater than a 3.5 foot rise over a 20 foot length. Always drive up and down slopes: never cross the face.

Also note that the surface you are driving on can greatly impact stability and control. Wet grass or icy pavement can seriously affect your ability to control the unit.

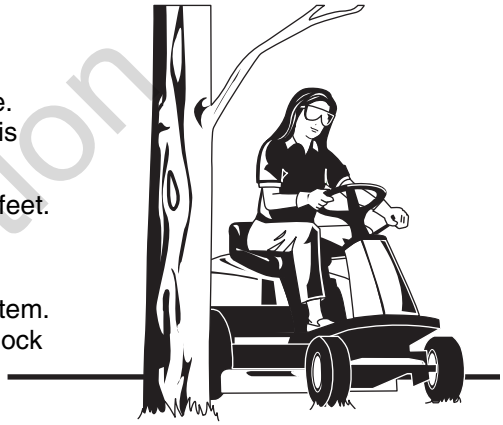
If you feel unsure about operating the unit on an incline, don't do it. It's not worth the risk.

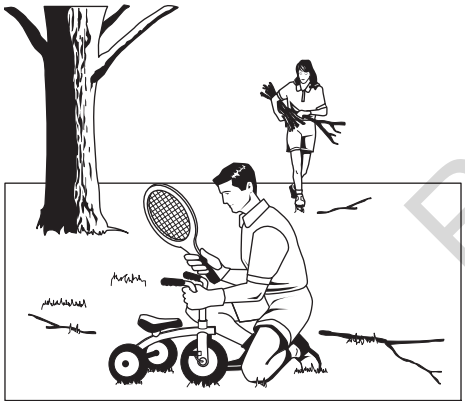
Moving Parts

This equipment has many moving parts that can injure you or someone else. However, if you are seated in the seat properly, and follow all the rules in this book, the unit is safe to operate.

The mower deck has spinning mower blades that can amputate hands and feet. Do not allow anyone near the equipment while it is running!

To help you, the operator, use this equipment safely, it is equipped with an operator-present safety system. Do NOT attempt to alter or bypass the system. See your dealer immediately if the system does not pass all the safety interlock system tests found in this manual.





Thrown Objects

This unit has spinning mower blades. These blades can pick up and throw debris that could seriously injure a bystander. Be sure to clean up the area to be mowed BEFORE you start mowing.

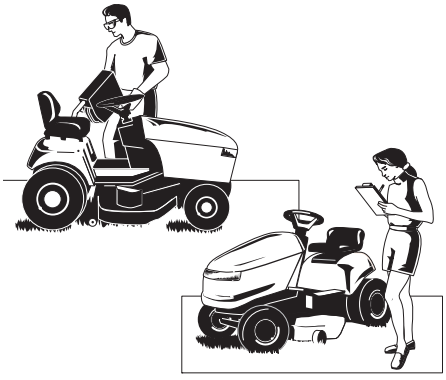
Do not operate this unit without the entire grass catcher or discharge guard (deflector) in place.

Also, do not allow anyone in the area while the unit is running! If someone does enter the area, shut the unit off immediately until they leave.

Fuel and Maintenance

Gasoline is extremely flammable. Its vapors are also extremely flammable and can travel to distant ignition sources. Gasoline must only be used as a fuel, not as a solvent or cleaner. It should never be stored any place where its vapors can build up or travel to an ignition source like a pilot light. Fuel belongs in an approved, plastic, sealed gas can, or in the tractor fuel tank with the cap securely closed. Spilled fuel needs to be cleaned up immediately.

Proper maintenance is critical to the safety and performance of your unit. Be sure to perform the maintenance procedures listed in this manual, especially periodically testing the safety system.



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Safety Rules & Information

Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment.
This mowing deck is capable of amputating hands and feet and throwing objects.
The triangle ⚠ in text signifies important cautions or warnings which must be followed.

GENERAL OPERATION

1. Read, understand, and follow all instructions in the manual and on the unit before starting.
2. Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.
3. Only allow responsible adults, who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).
4. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
5. Be sure the area is clear of other people before mowing. Stop the unit if anyone enters the area.
6. Never carry passengers.
7. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
8. Never direct discharge material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blade(s) when crossing gravel surfaces.
9. Do not operate the machine without the entire grass catcher, discharge guard (deflector), or other safety devices in place.
10. Slow down before turning.
11. Never leave a running unit unattended. Always disengage the PTO, set parking brake, stop engine, and remove keys before dismounting.
12. Disengage blades (PTO) when not mowing. Shut off engine and wait for all parts to come to a complete stop before cleaning the machine, removing the grass catcher, or unclogging the discharge guard.
13. Operate the machine only in daylight or good artificial light.
14. Do not operate the unit while under the influence of alcohol or drugs.
15 Watch for traffic when operating near or crossing roadways.
16. Use extra care when loading or unloading the unit into a trailer or truck.
17. Always wear eye protection when operating this unit.
18. Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the equipment safely enough to protect themselves and others from injury.
19. Follow the manufacturer's recommendations for wheel weights or counterweights.
20. Keep in mind the operator is responsible for accidents occurring to other people or property.
21. All drivers should seek and obtain professional and practical instruction.
22. Always wear substantial footwear and trousers. Never operate when barefoot or wearing sandals.
23. Before using, always visually check that the blades and blade hardware are present, intact, and secure. Replace worn or damaged parts.
24. Disengage attachments before: refueling, removing an attachment, making adjustments (unless the adjustment can be made from the operator's position).
25. When the machine is parked, stored, or left unattended, lower the cutting means unless a positive mechanical lock is used.
26. Before leaving the operator's position for any reason, engage the parking brake (if equipped), disengage the PTO, stop the engine, and remove the key.
27. To reduce fire hazard, keep the unit free of grass, leaves, & excess oil. Do not stop or park over dry leaves, grass, or combustible materials.
28. It is a violation of California Public Resource Code Section 4442 to use or operate the engine on or near any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester meeting any applicable local or state laws. Other states or federal areas may have similar laws.

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TRANSPORTING AND STORAGE

1. When transporting the unit on an open trailer, make sure it is facing forward, in the direction of travel. If the unit is facing backwards, wind lift could damage the unit.
2. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
3. Never store the unit (with fuel) in an enclosed poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion. Fuel vapor is also toxic to humans and animals.
4. Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
5. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
6. Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

SLOPE OPERATION

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate on it.

Control of a walk-behind or ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are: insufficient tire grip on the ground, speed too fast, inadequate braking, the type of machine is unsuitable for its task, lack of awareness of the ground conditions, incorrect hitching and load distribution.

1. Mow up and down slopes, not across.
2. Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
3. Choose a slow speed so that you will not have to stop or change speeds while on the slope.
4. Do not mow on wet grass. Tires may loose traction.
5. Always keep unit in gear especially when traveling down slopes. Do not shift to neutral and coast downhill.
6. Avoid starting, stopping, or turning on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
7. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to rollover.
8. Use extra care while operating machines with grass catchers or other attachments; they can affect the stability of the unit. Do not use on steeps slopes.
9. Do not try to stabilize the machine by putting your foot on the ground (ride-on units).
10. Do not mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
11. Do not use grass catchers on steep slopes.
12. Do not mow slopes you cannot back up them.
13. See your authorized dealer/retailer for recommendations of wheel weights or counterweights to improve stability.
14. Remove obstacles such as rocks, tree limbs, etc.
15. Use slow speed. Tires may lose traction on slopes even through the brakes are functioning properly.
16. Do not turn on slopes unless necessary, and then, turn slowly and gradually downhill, if possible.

TOWED EQUIPMENT (RIDE-ON UNITS)

1. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
2. Follow the manufacturer's recommendations for weight limit for towed equipment and towing on slopes.
3. Never allow children or others in or on towed equipment.
4. On slopes, the weight of the towed equipment may cause loss of traction and loss of control.
5. Travel slowly and allow extra distance to stop.
6. Do not shift to neutral and coast down hill.

⚠ WARNING

Never operate on slopes greater than 17.6 percent (10°) which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally.

When operating on slopes use additional wheel weights or counterweights. See your dealer/retailer to determine which weights are available and appropriate for your unit.

Select slow ground speed before driving onto slope. In addition to front weights, use extra caution when operating on slopes with rear-mounted grass catchers.

Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn unit off if children enter the area.
3. Before and during reverse operation, look behind and down for small children.
4. Never carry children, even with the blade(s) off. They may fall off and be seriously injured or interfere with safe unit operation. Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
5. Never allow children to operate the unit.
6. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

EMISSIONS

1. Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.
2. Look for the relevant Emissions Durability Period and Air Index information on the engine emissions label.

IGNITION SYSTEM

1. This spark ignition system complies with Canadian ICES-002.

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SERVICE AND MAINTENANCE

Safe Handling of Gasoline

1. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
2. Use only approved gasoline containers.
3. Never remove the gas cap or add fuel with the engine running. Allow the engine to cool before refueling.
4. Never fuel the machine indoors.
5. Never store the machine or fuel container where there is an open flame, spark, or pilot light such as near a water heater or other appliance.
6. Never fill containers inside a vehicle or on a truck bed with a plastic bed liner. Always place containers on the ground away from your vehicle before filling.
7. Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
8. Keep nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
9. If fuel is spilled on clothing, change clothing immediately.
10. Never over-fill the fuel tank. Replace gas cap and tighten securely.
11. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
12. If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
13. Replace all fuel tank caps and fuel container caps securely.

Service & Maintenance

1. Never run the unit in an enclosed area where carbon monoxide fumes may collect.
2. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
3. Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
4. Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. and remove any fuel-soaked debris. Allow machine to cool before storage.
5. If you strike an object, stop and inspect the machine. Repair, if necessary, before restarting.
6. Never make adjustments or repairs with the engine running.
7. Check grass catcher components and the discharge guard frequently and replace with manufacturer's recommended parts, when necessary.
8. Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
9. Check brake operation frequently. Adjust and service as required.
10. Maintain or replace safety and instructions labels, as necessary.
11. Do not remove the fuel filter when the engine is hot as spilled gasoline may ignite. Do not spread fuel line clamps further than necessary. Ensure clamps grip hoses firmly over the filter after installation.
12. Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.
13. If the fuel tank must be drained, it should be drained outdoors.
14. Replace faulty silencers/mufflers.
15. Maintain or replace safety and instruction labels as necessary.
16. Use only factory authorized replacement parts when making repairs.
17. Always comply with factory specifications on all settings and adjustments.
18. Only authorized service locations should be utilized for major service and repair requirements.
19. Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
20. On multiple blade mowers, take care as rotating one blade can cause other blades to rotate.
21. Do not change engine governor settings or overspeed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
22. Disengage drive attachments, stop the engine, remove the key, and disconnect the spark plug wire(s) before: clearing attachment blockages and chutes, performing service work, striking an object, or if the unit vibrates abnormally. After striking an object, inspect the machine for damage and make repairs before restarting and operating the equipment.
23. Never place hands near the moving parts, such as a hydro pump cooling fan, when the tractor is running. (Hydro pump cooling fans are typically located on top of the transaxle).
24. Units with hydraulic pumps, hoses, or motors: WARNING: Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result. Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, and not hands, to search for leaks. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. If leaks occur, have the unit serviced immediately by your authorized dealer.
25. WARNING: Stored energy device. Improper release of springs can result in serious personal injury. Springs should be removed by an authorized technician.
26. Models equipped with an engine radiator: WARNING: Stored energy device. To prevent serious bodily injury from hot coolant or steam blow-out, never attempt to remove the radiator cap while the engine is running. Stop the engine and wait until it is cool. Even then, use extreme care when removing the cap.

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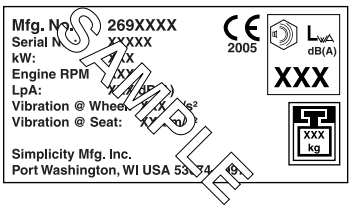
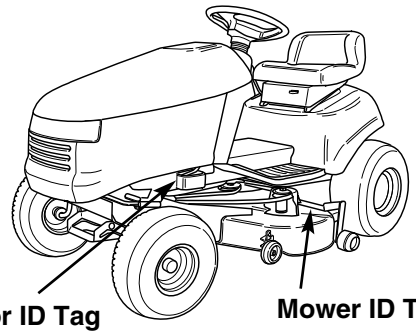
North American / CE Models



CE Models (Only)



When contacting your authorized dealer for replacement parts, service, or information you MUST have these numbers.

Record your model name/number, manufacturer's identification numbers, and engine serial numbers in the space provided for easy access. These numbers can be found in the locations shown.

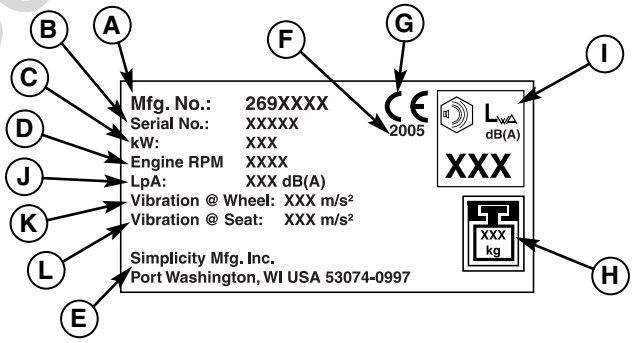
NOTE: For location of engine identification numbers, refer to the engine owner's manual.

CE Models: Place the extra copy of the identification tag in the manual

PRODUCT REFERENCE DATA	
Model Description Name/Number	
Unit MFG Number	Unit SERIAL Number
Mower Deck MFG Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec	Engine Code/Serial Number

CE IDENTIFICATION TAG MARKINGS

A. Manufacturer's Identification Number
B. Manufacturer's Serial Number
C. Power Rating in Kilowatts
D. Maximum Engine Speed in Rotations per Minute
E. Manufacturer's Address
F. Year of Manufacture
G. CE Compliance Logo
H. Mass of Unit in Kilograms
I. Sound Power in Decibels ***
J. Sound Pressure at Operator's Position in Decibels **
K. Vibration at the Steering Wheel *
L. Vibration at the Seat *



This unit complies with European Harmonized Lawn Mower Standard EN 836, European Machinery Directive 98/37/EC, and European EMC Directive 89/336/EC

* Tested according to EN 836:1997/A2:2001, EN 1032: 1996, EN 1033:1995

** Tested according to EN836:1997/A2:2001

*** Tested according to 2000/14/EC

CE Models:
Place copy of
Identification Tag here.

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SAFETY DECALS

This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

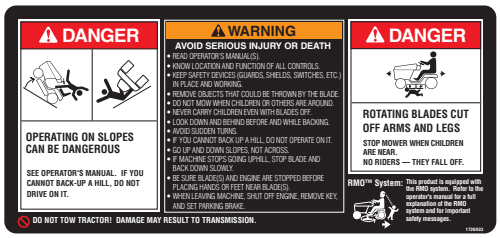
Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION and instructional messages on your rider and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals below are on your rider and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.

NORTH AMERICAN MODELS


DANGER
OPERATING ON SLOPES CAN BE DANGEROUS
SEE OPERATOR'S MANUAL. IF YOU CANNOT BACK-UP A HILL, DO NOT DRIVE ON IT.
WARNING
AVOID SERIOUS INJURY OR DEATH
DANGER
ROTATING BLADES CUT OFF ARMS AND LEGS
STOP MOWER WHEN CHILDREN ARE NEAR.
NO RIDERS — THEY FALL OFF.
RMO™ System:
DO NOT TOW TRACTOR! DAMAGE MAY RESULT TO TRANSMISSION.

Decal - Operating Instructions, North American Models, Part No. 1726923

Decal - Danger, Rotating Blades Part No. 1704277

Decal - Danger, Rotating Blades Part No. 1704276

DANGER
ROTATING SHAFT
CONTACT CAN CAUSE SERIOUS INJURY OR DEATH.
KEEP HANDS AND FEET CLEAR.
DO NOT STAND OR RIDE ON REAR PTO COVER.

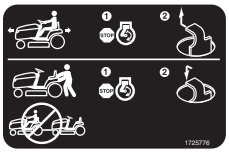
Decal - Danger, Rotating Parts, 540 PTO Models Part No. 1725575

DANGER
• If you cannot back up a hill in 2WD, do not operate on it.
• Be aware that 4WD can improve access to dangerously sloped terrain thereby increasing the possibility of tip-over.

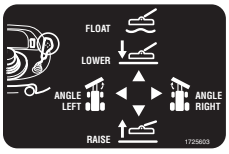
Decal - 4WD Rollover Part No. 1727089

Decal - Danger, Rotating Fan, Diesel Models Part No. 1726045

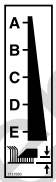
ALL MODELS



Decal - Transmission Release Part No. 1725776



Decal - Attachment Lift Control Part No. 1725603



Decal - Cutting Height Part No. 1717583

Decal - Cutting Height Part No. 1721197

Decal - Ignition Switch Positions Part No. 1722806

Decal - Throttle Positions Part No. 1725571

Decal - PTO Selector Positions Part No. 1725574

CE MODELS

Decal - Operating Instructions, CE Models, Part No. 1723175

Decal - Danger, Rotating Blades Part No. 1720389

Decal - Danger, Rotating Parts, 540 PTO Models Part No. 1725618

Decal - Danger, Rotating Fan, CE, Diesel Models Part No. 1726086

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SAFETY ICONS

Warning: Read Operator's Manual.

Read and understand the Operator's Manual before using this machine.

Danger: Thrown Objects.

This machine is capable of throwing objects and debris. Keep bystanders away.

Warning: Remove Key Before Servicing.

Remove the key and consult technical literature before performing repairs or maintenance.

Warning: Rotating Shaft Can Cause Injury or Death.

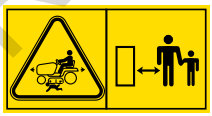
Keep hands and feet clear.

Danger: Machine Rollover.

Do not use this machine on slopes greater than 10°.

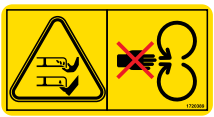
Danger: Dismemberment.

This machine can amputate limbs. Keep bystanders and children away when engine is running.



Danger: Dismemberment.

This mower deck can amputate limbs. Keep hands and feet away from blades.



SAFETY INTERLOCK SYSTEM TESTS

This unit is equipped with safety interlock switches and other safety devices. These safety systems are present for your safety: do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

Operational SAFETY Checks

Your unit is equipped with a seat switch safety system. Check the seat switch operation every fall and spring with the following tests.

Test 1 — Engine should NOT crank if:

- PTO switch is ON, OR
- Brake pedal is NOT fully depressed (parking brake OFF), OR
- The cruise control lever is NOT in NEUTRAL.

Test 2 — Engine SHOULD crank if:

- PTO switch is OFF, AND
- Brake pedal is fully depressed (parking brake ON), AND
- The cruise control lever is in NEUTRAL.

Test 3 — Engine should SHUT OFF if:

- Operator rises off seat with PTO engaged, OR
- Operator rises off seat with brake pedal NOT fully depressed (parking brake OFF).

Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within five seconds after PTO switch is turned OFF. If mower drive belt does not stop within five seconds, see your dealer.

Test 5 — Reverse Mow Option (RMO) Check

- Engine should shut off if reverse travel is attempted if the PTO has been switched on and RMO has not been activated.
- RMO light should illuminate when RMO has been activated.

NOTE: Once the engine has stopped, the PTO switch must be turned off after the operator returns to the seat in order to start the engine.

WARNING

If the unit does not pass a safety test, do not operate it. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety interlock system.

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Features & Controls

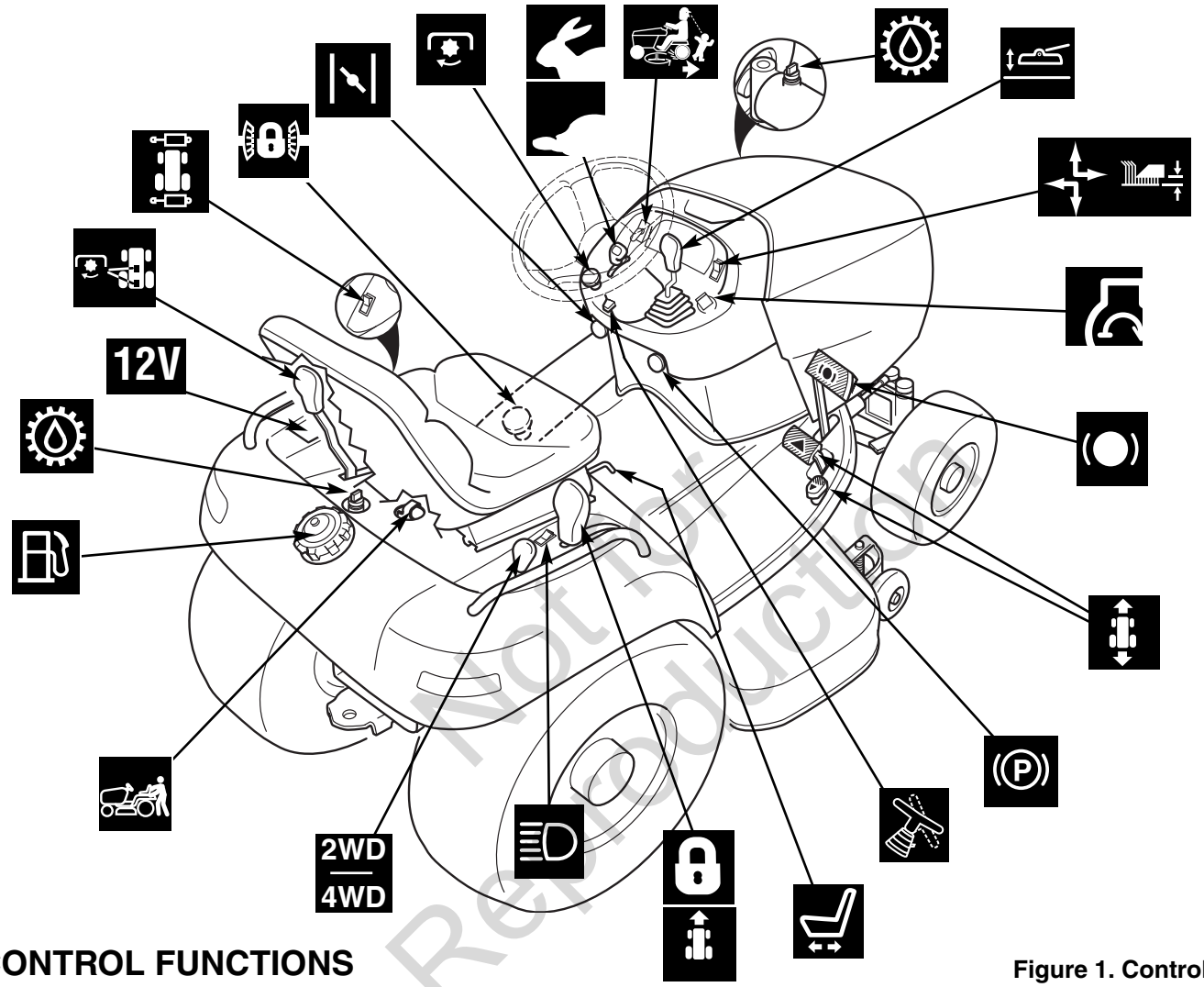

Figure 1. Controls

CONTROL FUNCTIONS

The information below briefly describes the function of individual controls. Starting, stopping, driving, and mowing require the combined use of several controls applied in specific sequences. To learn what combination and sequence of controls to use for various tasks see the OPERATION section.

Choke (Select Models)

Close the choke for cold starting. Open the choke once the engine starts. A warm engine may not require choking. Pull the choke control out to close the choke.

Throttle Control

The throttle controls engine speed. Move the throttle forward to increase engine speed and back to decrease engine speed. Always operate at FULL throttle.

Headlights

The light switch turns the tractor headlights on and off.

Front Axle Oil Level Plug (4WD Models Only)

The front axle oil check plug/dipstick is used to check the front axle oil level and to add oil to the axle. See FRONT AXLE MAINTENANCE for oil level check and fill procedures.

Transmission Oil Level Check Plug

Transmission oil check plug/dipstick is used to check transmission oil level and to add oil to the transmission. See TRANSMISSION MAINTENANCE for oil level check and fill procedures.

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Attachment Lift Control Lever

When using the mower deck, lift the deck off the ground while transporting to and from the job site. **DO NOT** cut with the mower in the raised, transport position.

The attachment lift control lever raises and lowers attachments that utilize the tractor's hydraulic lift cylinder. This lever also controls attachments that use the tractor's auxiliary hydraulics via the quick couplers on the front left and right sides of the frame.

When using a mower deck (Front / Rear Hydraulic selector switch must be in REAR position), pulling the lever back raises the attachment lift. Pushing the lever forward to the first detent lowers the attachment lift. Pushing the lever forward to the second detent locks the control in "float" position, allowing the lift mechanism to float up and down. Float is the recommended position when mowing.

For a complete explanation on this control, see HYDRAULIC SYSTEM FUNCTIONS.

Cutting Height Adjustment

The cutting height adjustment switch controls the mower cutting height. This same switch also controls the spout rotator motor when a snowthrower is installed. The arrows on the switch correspond to the direction of adjustment (UP arrow raises cutting height, RIGHT arrow rotates the spout right, etc). The mower cutting height is infinitely adjustable between 1" to 4-13/32" (2,5 cm-11,2 cm). When the adjustment indicator has reached the end of its travel, release the switch; holding the switch down will damage the motor.

Ignition Switch

The ignition switch starts and stops the engine, it has three positions:

OFF	Stops the engine and shuts off the electrical system.
RUN	Allows the engine to run and powers the electrical system. Activates the glow plugs on diesel models
START	Cranks the engine for starting.

NOTE: Never leave the ignition switch in the RUN position with the engine stopped–this drains the battery.

Brake Pedal

Depressing the brake pedal applies the tractor brake. Depressing the brake pedal will also return the cruise control lever to neutral.

Ground Speed Pedals

The tractor's forward ground speed is controlled by the forward ground speed control pedal. The tractor's reverse ground speed is controlled by the reverse ground speed control pedal. Note that the further down the pedal is depressed, the faster the tractor will travel.

Parking Brake

The parking brake knob is used to lock the parking brake when the tractor is stopped. Fully depressing the brake pedal and pulling the knob out engages the parking brake. Refer to page 10 for a full explanation of parking brake functions.

Steering Tilt Adjust (Select Models)

Use the tilt knob located on the bellows to release the pivot mechanism and pivot the wheel to the desired position. Release the tilt knob to lock in position.

Seat Adjustment Lever

The seat can be adjusted forward and back. Move the lever, position the seat as desired, and release the lever to lock the seat into position.

Cruise Control

The cruise control is used to lock the ground speed control in forward. Move the lever forward until the desired ground speed is reached. To disengage the cruise control move the lever back. In the event you need to stop quickly, depressing the brake pedal will also return the cruise control to neutral.

2-Wheel / 4-Wheel Drive Selector (Select Models)

The 2-wheel / 4-wheel drive selector disengages the front wheels in the 2-wheel drive position and drives all four wheels in 4-wheel drive position. Engage / disengage the 4-wheel drive control only when stopped or at slow speeds.

Transmission Release Valve Lever

The transmission release valve lever deactivates the transmission so that the tractor can be pushed by hand. See PUSHING THE TRACTOR BY HAND for operational information.

Fuel Tank

To remove the cap, turn counterclockwise.

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Transmission Oil Level Check Plug

Transmission oil check plug/dipstick is used to check transmission oil level and to add oil to the transmission. See TRANSMISSION MAINTENANCE for oil level check and fill procedures.

Mid / Rear PTO Selector

The mid / rear PTO selector lever selects which PTO or combination of PTOs is activated by the PTO switch. The selector has three positions (from front to back:) mid PTO active only, mid and rear PTO active, rear PTO active only. Disengage the PTO switch before altering this control's setting.

Front / Rear Hydraulics Selector

The front / rear hydraulics selector switches which hydraulic circuit is controlled by the forward and backward movement of the attachment lift lever.

When the switch is in the forward position, the attachment lift control lever affects attachments connected to the two front left quick couplers. When the switch is in the rear position the attachment lift control affects the tractor's hydraulic cylinder.

12V Power Outlet (Select Models)

The power outlet is 12V-DC. Accessory must be rated at 14 amps or less.

Differential Lock Pedal

Depressing this pedal locks the transmission differential, locking both rear wheels into "drive".

Use this feature if the tractor is stuck because one wheel is slipping. **Engage the differential lock at slow ground speeds only.**

PTO Switch

The PTO (Power Take-Off) switch, in conjunction with the mid / rear PTO selector, engages and disengages attachments connected to the tractor's mid or rear PTO shafts. To engage the PTO, pull UP on the switch. Push DOWN to disengage. Be sure to check the position of the mid / rear PTO selector lever before engaging the PTO. DO NOT engage a PTO that is not connected to an attachment as the rotating shaft is a safety hazard. *Note that the operator must be seated firmly in the tractor seat for the PTO to function.*

Reverse Mowing Option (RMO)

The Reverse Mowing Option allows for mowing (or use of other PTO driven attachments) while traveling in reverse. If you choose to mow or operate another attachment in reverse, turn the RMO key after the PTO is engaged. The L.E.D. light will illuminate, and the operator can then mow in reverse. Each time the PTO is disengaged the RMO needs to be reactivated if desired.

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PARKING BRAKE FUNCTION

Applying the Parking Brake - See Figure 2. To lock the parking brake, release the ground speed pedals (A), fully depress the brake pedal (B), pull the parking brake knob (C) out, and then release brake pedal.

Releasing the Parking Brake - See Figure 2. To release the parking brake, fully depress the brake pedal (B) and push in the parking brake knob (C).

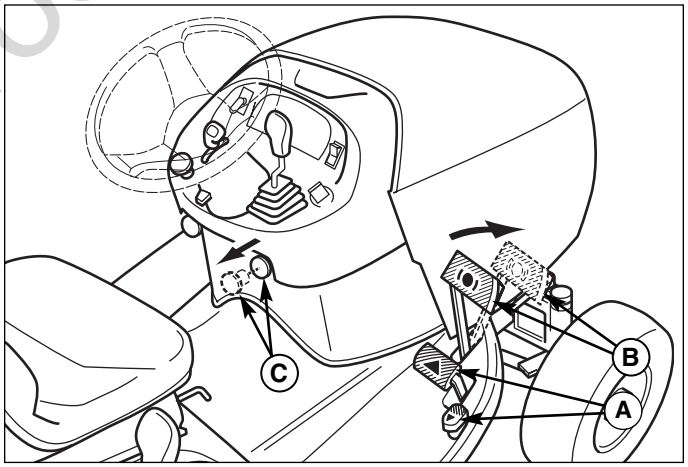

Figure 2. Engaging the Parking Brake
A. Ground Speed Pedals
B. Brake Pedal
C. Parking Brake Knob

AUTOMATIC CONTROLLED TRACTION

What is Automatic Controlled Traction?

Automatic Controlled Traction (ACT) is an exclusive feature of our transmissions that provides improved traction. ACT applies a preset amount of torque to both rear wheels even if one starts slipping (a transmission without ACT will lose traction completely if one rear wheel starts slipping). This preset torque is just enough to provide additional traction, and still allow the wheels to turn at different speeds in a tight turn without damaging the lawn.

What to Expect from Your ACT Tractor

For the most part, while using your tractor you will not notice ACT working, and you will simply become accustomed to increased traction an ACT transmission provides.

Under certain circumstances the ACT system limit can be exceeded, and one of the rear wheels may slip (for instance if trying to turn up a hill while accelerating). This is normal. If you start to lose traction, do not speed up. Instead, slow to a stop, straighten the steering wheel, and slowly accelerate. Stopping the tractor allows the transmission to regain more traction.

DASHBOARD DISPLAY FUNCTIONS

The dashboard display shows a variety of engine operation and control status information, as explained in the descriptions below.

A. Irregular Voltage (Liquid Cooled Models)

Indicates that the voltage being produced by the charging system and battery is higher or lower than normal levels.

B. Rear PTO Light

Indicates that the optional rear PTO is engaged.

C. Mid (Front) PTO Light

Indicates that the mid PTO is engaged.

D. Hour Meter/Clock

Displays number of hours the unit has been operated.

E. Cruise Control Light

Indicates that the cruise control is engaged.

F. Low Oil Pressure Light

Indicates that the engine oil pressure is low. If this indicator lights, shut the engine off immediately and contact your dealer.

G. 4 Wheel Drive Light (4WD Models Only)

Indicates that 4 wheel drive is engaged.

H. Fuel Separator Full Light (Diesel Models)

Indicates that the fuel separator is full and must be emptied.

I. Fuel Gauge

The fuel gauge shows the level of fuel in the fuel tank.

J. Tachometer

Displays the engine RPM. Normal operating speed is 3400 RPM. Do not operate at less than 3000 RPM during normal use.

K. Coolant Temperature (Liquid Cooled Models)

Shows the engine coolant temperature.

L. Glow Plug Light (Diesel Models)

Indicates that the glow plugs are heating. Leave the key in the run position until the light goes out, then turn the key to start.

M. Voltmeter (Models with Air-Cooled Engines)

Shows the voltage being produced by the charging circuit and battery.

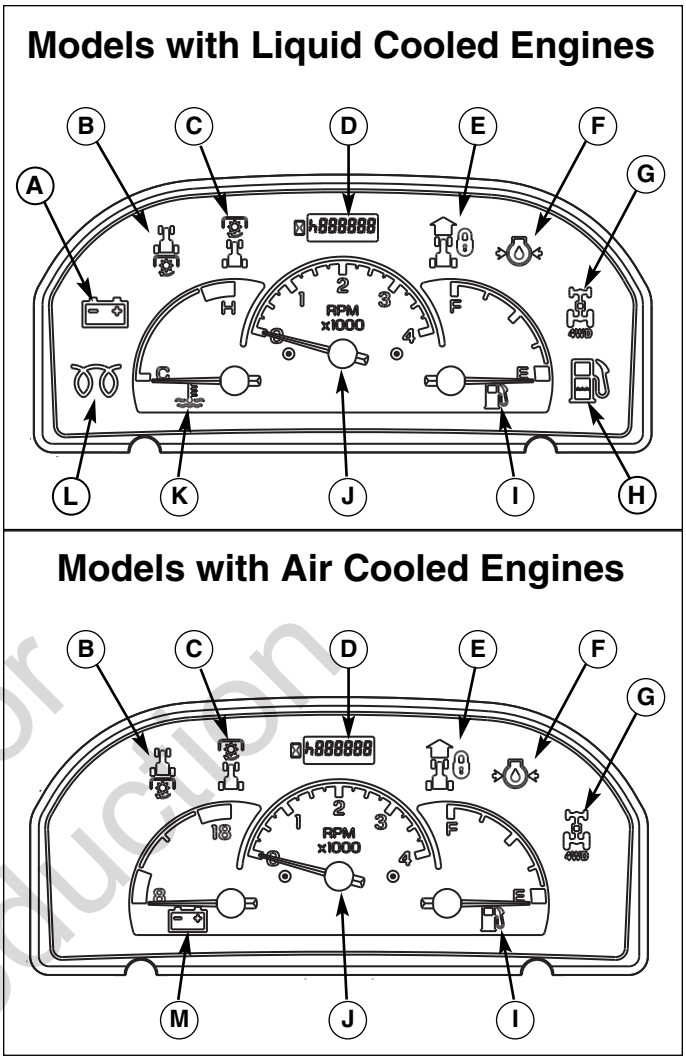

Figure 3. Dashboard Display — Models with air cooled engines

A. Irregular Voltage
B. Rear PTO Engaged
C. Mid (Front) PTO Engaged
D. Hour Meter
E. Cruise Control Engaged
F. Low Oil Pressure
G. 4 Wheel Drive Engaged (Select Models)
H. Fuel Separator Full (Diesel Models Only)
I. Fuel Gage
J. Tachometer
K. Engine Coolant Temperature
L. Glow Plugs Heating
M. Voltage Meter

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Operating the Tractor

GENERAL OPERATING SAFETY

Be sure to read all information in the Safety and Operation sections before attempting to operate this unit. Become familiar with all of the controls and how to stop the unit.

SLOPE OPERATION

⚠ WARNING

Never operate on slopes greater than 17.6 percent (10°) which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally.

When operating on slopes use additional wheel weights or counterweights. See your dealer to determine which weights are available and appropriate for your unit.

Select slow ground speed before driving onto slope. In addition to front and rear weights, use extra caution when operating on slopes with rear-mounted grass catcher.

Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

ADDING FUEL

To add fuel:

1. Remove the fuel cap (A, Figure 4).
2. Fill the tank. Do not overfill. Leave room in the tank for fuel expansion. Refer to your engine manual for specific fuel recommendations.
3. Install and hand tighten the fuel cap.

Gasoline Engine Models: Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.

⚠ WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

STARTING THE ENGINE

Gas Models

1. While sitting in the operator's seat, fully depress the brake pedal or set the parking brake.
2. Set the cruise control lever in neutral and make sure that your feet are not depressing the ground speed control pedals.
3. Disengage the PTO.
4. Set the throttle to FULL.
5. Close the CHOKE.

NOTE: A warm engine may not require choking.

6. Insert the key into the ignition switch and turn it to START.
7. After the engine starts, open the choke and move the engine throttle control to SLOW. Warm up the engine by running it for at least a minute. Set the throttle to FULL before engaging the PTO switch or driving the tractor.

Diesel Models

1. While sitting in the operator's seat, fully depress the brake pedal or set the parking brake.
2. Set the cruise control lever in neutral and make sure that your feet are not depressing the ground speed control pedals.
3. Disengage the PTO.
4. Set the throttle to middle position (set throttle to FULL when starting in cold weather).
5. Turn the key to the RUN position to activate the glow plugs; the glow plug light in the dashboard display will light.
6. Wait for the glow plug light to turn off, then turn the key to START. If the engine does not start immediately, move the throttle to FULL.
7. After the engine starts, move the engine throttle control to SLOW. Warm up the engine by running it for at least a minute.
8. Move the throttle to FULL before engaging the PTO switch or driving the tractor.

NOTE: In the event of an emergency the engine can be stopped by simply turning the ignition switch to STOP. Use this method only in emergency situations. For normal engine shut down follow the procedure given in STOPPING THE TRACTOR.

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STOPPING THE TRACTOR & ENGINE

1. Return the ground speed control(s) to neutral and engage the parking brake.
2. Disengage the PTO and wait for all moving parts to stop.
3. Place the throttle control in the position specified in the engine owner's manual provided in the operator's packet shipped with your tractor. Follow any recommended stopping procedures.
4. Turn the ignition switch to OFF. Remove the key.

DRIVING THE TRACTOR

1. Sit in the seat and adjust the seat so that you can comfortably reach all the controls and see the dashboard display.
2. Engage the parking brake.
3. Make sure the PTO switch is disengaged.
4. Start the engine (see STARTING THE ENGINE).
5. Disengage the parking brake and release the brake pedal.
6. Depress the forward ground speed control pedal to travel forward. Release the pedal to stop. Note that the further down the pedal is depressed the faster the tractor will travel.
7. Stop the tractor by releasing the ground speed control pedals, setting the parking brake, and stopping the engine (see STOPPING THE TRACTOR AND ENGINE).

MOWING

1. Engage the parking brake. Make sure the PTO switch is disengaged.
2. Start the engine (see STARTING THE ENGINE).
3. Set the hydraulic selector switch to REAR. Fully lower the mower using the attachment lift lever.
4. Set the mower cutting height to the desired level.
5. Set the throttle to FULL.
6. Set the PTO selector to MID PTO ONLY. Engage the PTO switch.
7. Begin mowing. See Section LC for tips on mowing patterns, lawn care, and troubleshooting information.
8. When finished, shut off the PTO and raise the mower using the attachment lift control lever.
9. Stop the engine (see STOPPING THE TRACTOR AND ENGINE).

⚠ WARNING

The engine will shut off if the reverse ground speed pedal is depressed while the PTO is on and the RMO has not been activated. The operator should always turn the PTO off prior to driving across on roads, paths or any area that maybe used by other vehicles. Sudden loss of drive could create a hazard.

⚠ WARNING

Mowing in reverse can be hazardous to bystanders. Tragic accidents can occur if the operator is not alert to the presence of children. Never activate RMO if children are present. Children are often attracted to the unit and the mowing activity.

MOWING IN REVERSE

If an operator chooses to mow in reverse, the RMO system can be used. To use the Reverse Mowing Option (RMO) turn the RMO key after the PTO is engaged. The L.E.D. light will illuminate, and the operator can then mow in reverse. Each time the PTO is disengaged the RMO needs to be reactivated if desired. The key should be removed to restrict access to the RMO feature.

ATTACHMENT OPERATION IN REVERSE

If an operator chooses to operate a PTO driven attachment in reverse, the RMO system can be used. To use the Reverse Mowing Option (RMO) turn the RMO key after the PTO is engaged. The L.E.D. light will illuminate, and the operator can then operate the attachment in reverse. Each time the PTO is disengaged the RMO needs to be reactivated if desired. The key should be removed to restrict access to the RMO feature.

4-WHEEL DRIVE OPERATION (Select Models)

When operating in 4WD without a mower deck installed on the tractor, it is recommended you install rear wheel weights to increase stability.

⚠ WARNING

If you cannot back up a hill in 2WD, Do not operate on it. Use extra caution on slopes. To increase traction and provide four-wheel braking, engage mechanical front wheel drive (4WD) when driving on slopes. Be aware that 4WD can improve access to dangerously sloped terrain, thereby increasing the possibility of tipover.

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PUSHING THE TRACTOR BY HAND

DO NOT TOW TRACTOR
Towing the unit will cause transmission damage. Do not use another vehicle to push or pull this unit. Do not actuate the transmission release valve lever while the engine is running.

1. Disengage the PTO and turn the engine off.
2. Push the transmission release (B, Figure 4) forward and down to lock into the released position. The tractor can now be pushed by hand.
3. Move the lever rearward and up to engage the transmission.

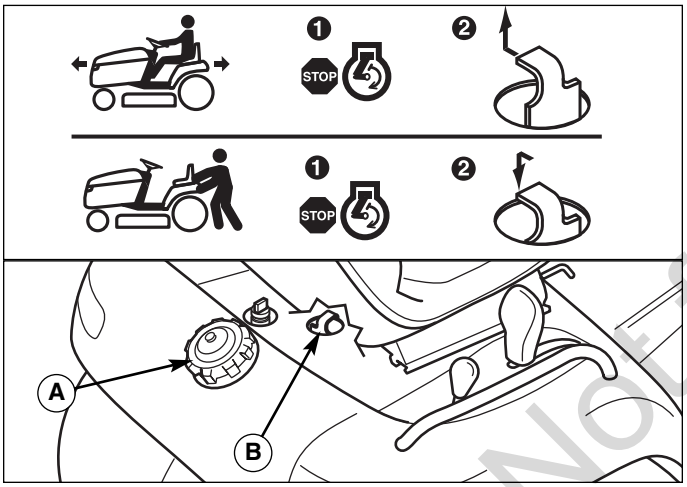

Figure 4. Transmission Release Lever & Fuel Tank
A. Fuel Tank Cap.
B. Transmission Release Lever

HYDRAULIC SYSTEM FUNCTIONS

General

All of the inboard and auxiliary hydraulics are controlled by the attachment lift control lever. The attachment lift control lever raises and lowers attachments that utilize the tractor's hydraulic lift cylinder. This lever also controls attachments that use the tractor's auxiliary hydraulics via the quick couplers on the front left and right sides of the frame.

The rate of hydraulic fluid flow and pressure that are available when using the auxiliary hydraulic quick couplers is listed in the chart in Figure 5.

The lever has five positions: left, right, back, forward (first detent) and float (pushed forward to second detent).

Using Inboard Hydraulics

The inboard hydraulics control the tractor's belly attachment lift (mower deck) and three point hitch lift (if equipped). The front / rear hydraulic selector switch must be in the REAR position.

Pulling the lever back raises the attachment lift (A, Figure 6). Pushing the lever forward to the first detent lowers the attachment lift (B, Figure 6). Pushing the lever forward to the second detent locks the control in "float" position, allowing the lift mechanism to float up and down.

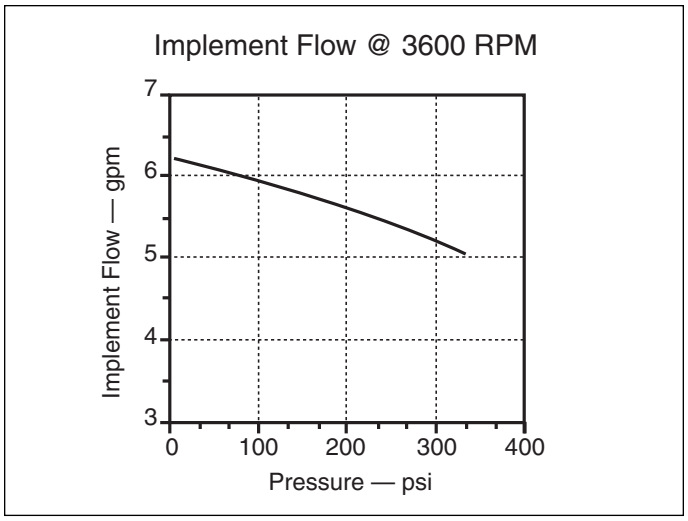

Figure 5. Hydraulic System Pressure / Flow

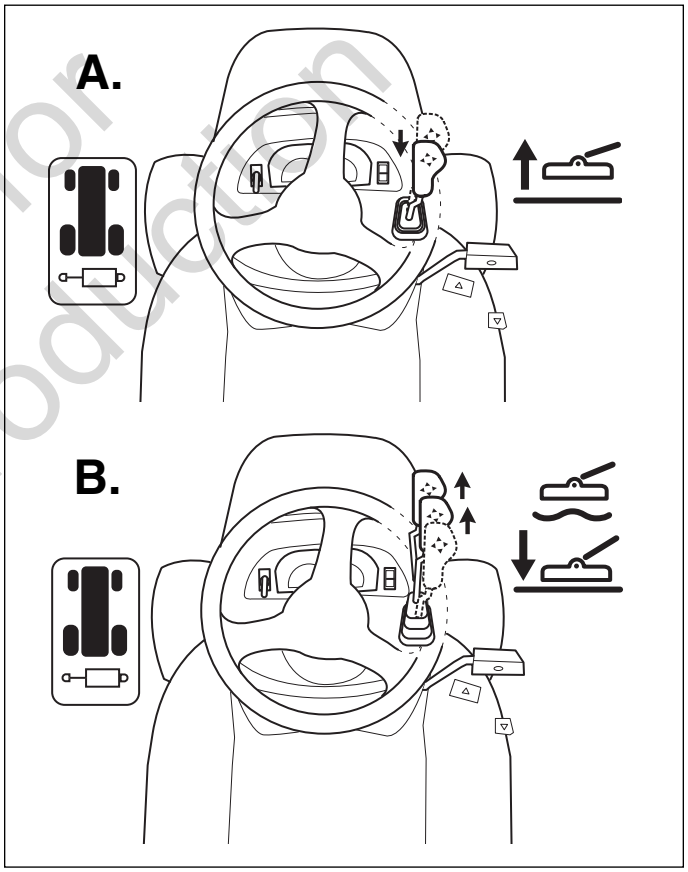

Figure 6. Inboard Hydraulics
A. Lift
B. Lower

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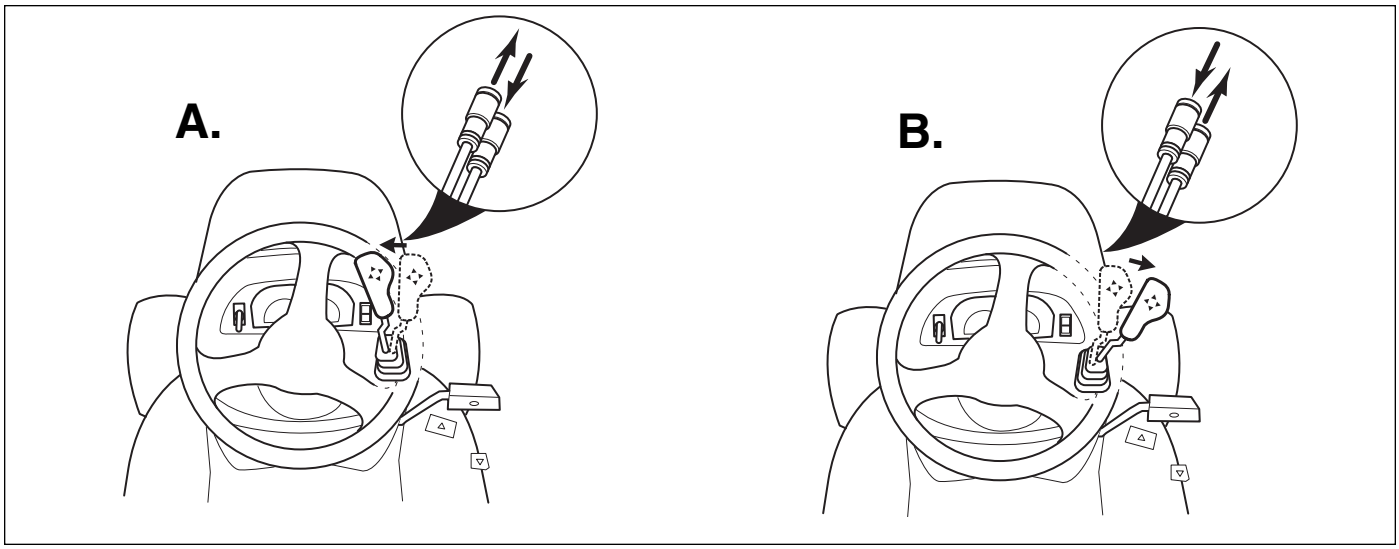

Figure 7. Auxiliary Hydraulics
A. Angle Left
B. Angle Right

Using Auxiliary Hydraulics

The attachment lift control is also used to control attachments that use the tractor's auxiliary hydraulic couplers located on the right and left front frame rails. The left set of quick couplers is activated when the front / rear hydraulic switch is turned to the FRONT position (this disables the inboard hydraulic cylinder).

Moving the control lever to the left (A, Figure 7) angles the attachment left. Moving the lever right (B, Figure 7) angles the attachment right.

Pulling the lever back raises the attachment lift (A, Figure 8). Pushing the lever forward to the first detent lowers the attachment lift (B, Figure 8). Pushing the lever forward to the second detent locks the control in "float" position, allowing the lift mechanism to float up and down.

Many approved attachments have color coded quick couplers to aid in installation. Match the tractor quick coupler with the like colored attachment quick coupler.

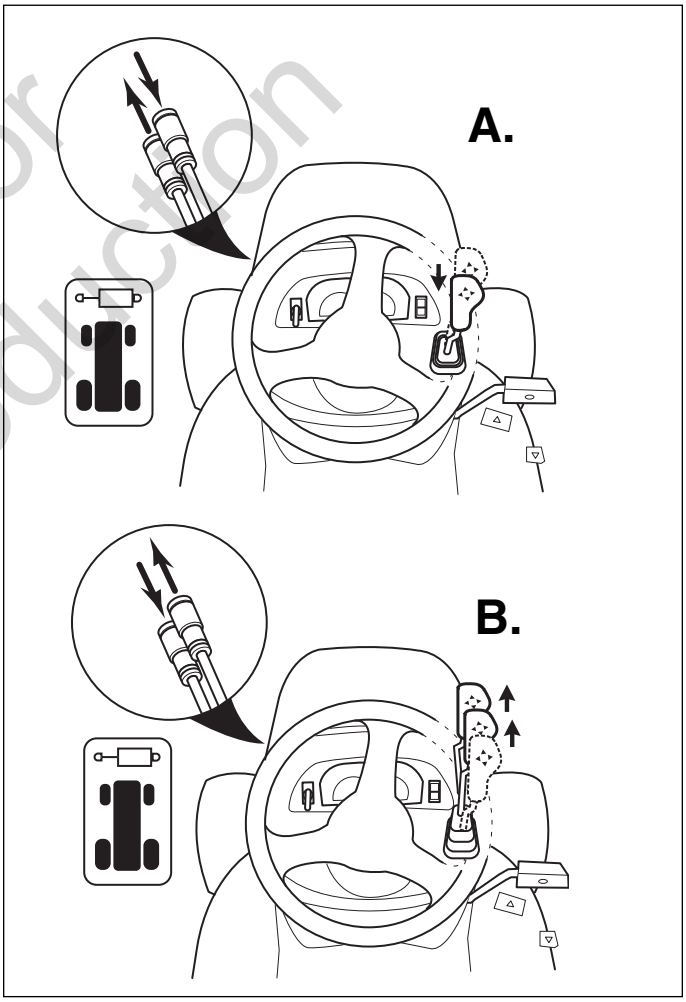

Figure 8. Auxiliary Hydraulics
A. Lift
B. Lower

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OPTIONAL 3-POINT HITCH OPERATION

Attachment Weight Limit

The maximum allowable attachment weight is determined by the gross weight of the attachment verses the distance from the end of the tractor hitch arm to the attachment's center of gravity (Figure 10). The further an attachment's center of gravity is from the tractor, the more leverage is required to raise it.

Measure the distance from the end of the hitch arms to the attachment's center of gravity (Figure 10) and use the graph in Figure 9 to determine if an attachment is too heavy to be used with your tractor.

Always use a front weight carrier and 50 lbs. suitcase weights when using a rear-mounted attachment. Remove the front weights when the rear attachment is removed.

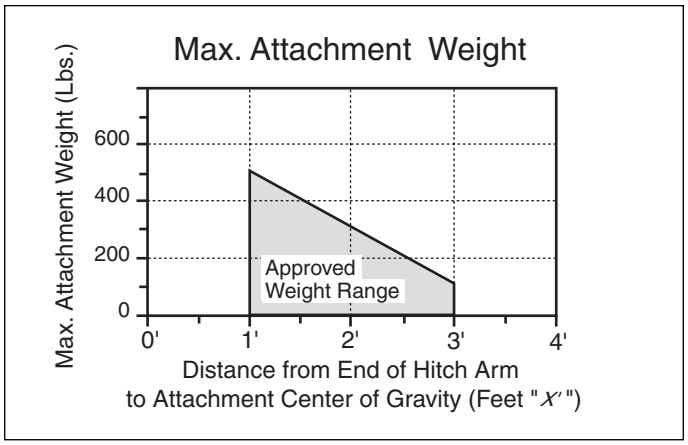

Figure 9. Attachment Weight Limit

⚠ CAUTION

Avoid injury! A machine with a 3-point hitch attachment installed may become unstable when the attachment is raised. Always drive slower over uneven ground and when turning with the attachment raised.

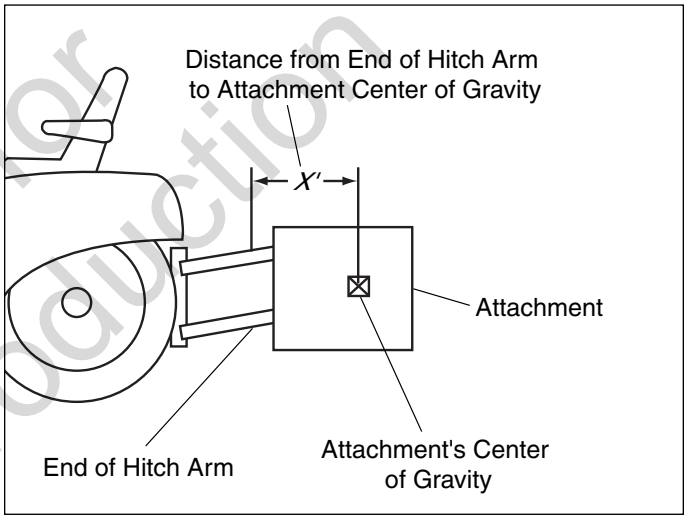

Figure 10. Attachment Weight Limit

Locking The Hitch

The 3-point hitch can be locked in the raised position. When a rear attachment is locked in the raised position, the tractor's on-board hydraulic cylinder can be used to lift mid mounted attachments without having to remove the rear attachment. For example, if a tractor equipped with a tiller is to be used for mowing, the tiller can be locked in the raised position allowing the mower to be installed and used.

To lock the 3-point hitch in the raised position:

1. Raise the attachment lift.
2. Remove the locking rod from its storage position (A, Figure 11) and insert it below the hitch arms in the locking position (B).
3. Secure with a hair pin clip.

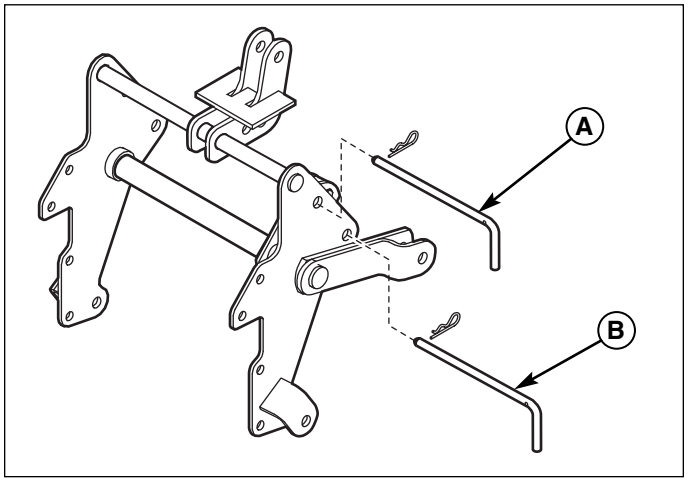

Figure 11. Hitch Rod Positions
A. Rod Storage
B. To Lock Lift In Raised Position

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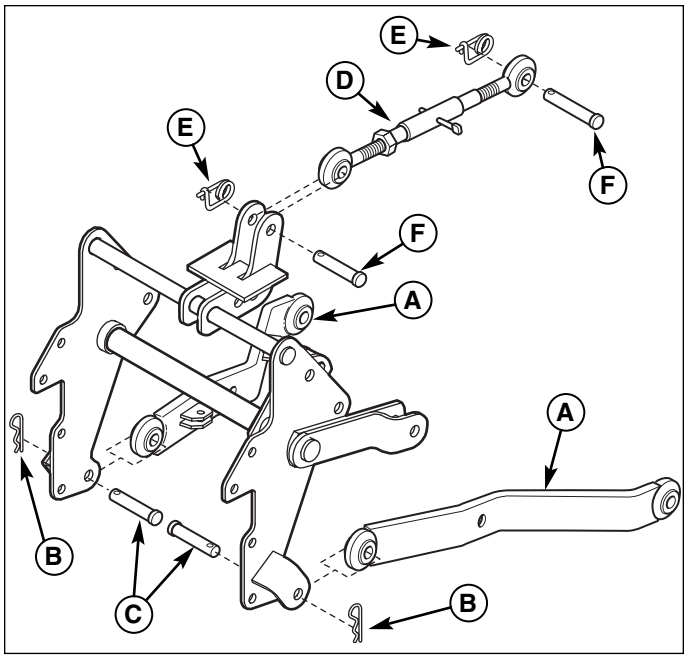

Figure 12. Install Sway Arms
A. Sway Arms
B. Hair Pin Clips
C. Clevis Pins
D. Upper Link Assembly
E. Safety Clips
F. Clevis Pins

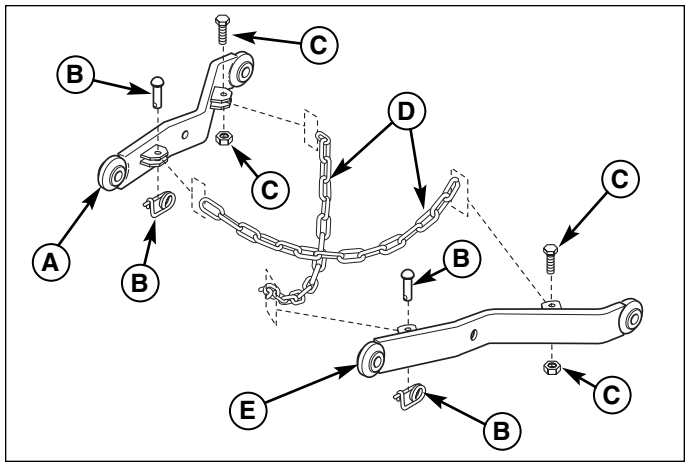

Figure 13. Install Chains
A. Right Sway Arm
B. Clevis Pin & Safety Clip
C. Capscrew, 3/8-16 x 1-1/2 & Locknut
D. Chains
E. Left Sway Arm

Hitch Arms Installation

1. Attach the upper lift link (D, Figure 12) to the hitch using a clevis pin (F) and safety clip (E).
2. Attach the sway arms (A, Figure 12) to the hitch assembly using clevis pins (C) and hair pin clips (B). The arms should angle out, away from center.
3. Attach the sway chains (D, Figure 13) to the back of the sway arms (A, E) using 3/8 x 1-1/2 capscrews (C) and 3/8 locknuts. Cross the chains and secure to front of the sway arms with clevis pins and hair pin clips (B).
4. Attach the adjustable link (E, Figure 14) and lift link assembly (C) using clevis pins (B) and hair pin clips.

NOTE: The adjustable lower lift link (E, Figure 14) goes on the right side.

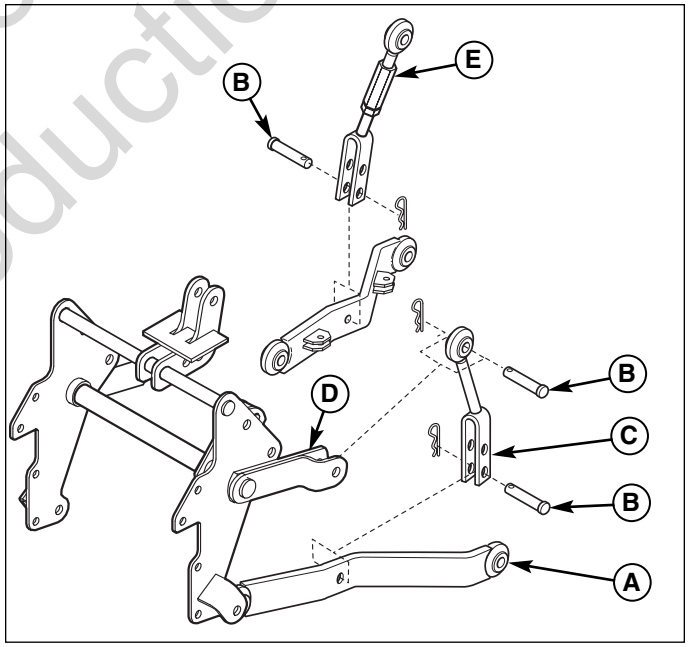

Figure 14. Install Lift Links
A. Left Sway Arm
B. Clevis Pin & Hair Pin Clip
C. Fixed Lift Link
D. Lift Lever
E. Adjustable Lift Link

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540 REAR PTO OPERATION (SELECT MODELS)

Checks Before Starting

Refer to the Maintenance & Adjustments sections of this manual and perform any needed service.

Connecting a Drive Shaft

1. Disengage the PTO, set the parking brake, stop the engine, and wait for all moving parts to stop.
2. Pull back on the locking collar (A, Figure 15) and slide the connector on the PTO shaft as far as it will go.
3. Pull back on the drive shaft until the locking collar snaps into place. Check that the connection is secure.

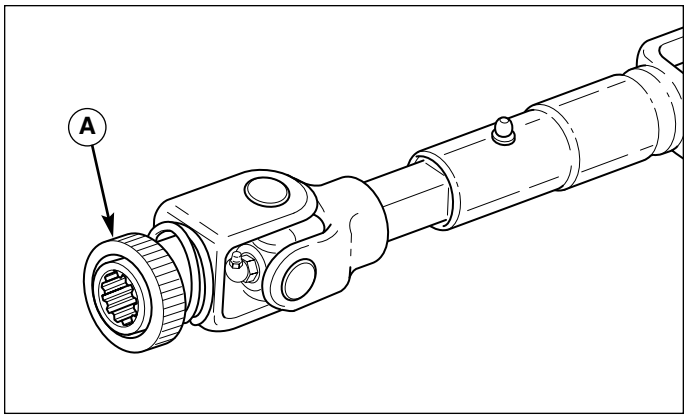

Figure 15. Typical Drive Shaft
A. Locking Collar

Starting & Stopping the PTO

1. Stop the engine and remove the key. Set the parking brake.
2. See Attachment Operator's Manual or Installation Instructions to properly install/connect the attachment to be used. If connecting to a stationary attachment, set the parking brake during attachment operation.
3. Start the tractor engine. Allow the engine to warm-up for several minutes before engaging the PTO.
4. Set engine throttle to FULL
5. Place the PTO selector lever in the rear position (A, Figure 16) if only a rear attachment is being used. If a mid and rear attachment are being used simultaneously, place the lever in the mid position (B). If only a mid or front attachment is being used, place the control in position (C).
6. Pull UP on the PTO switch to engage the PTO.
7. When finished, move the throttle control to IDLE and push the PTO switch DOWN to disengage. Wait for all moving parts to stop.
8. When disconnecting the attachment, stop the engine, remove the key, and set the parking brake. Wait for all moving parts to stop.

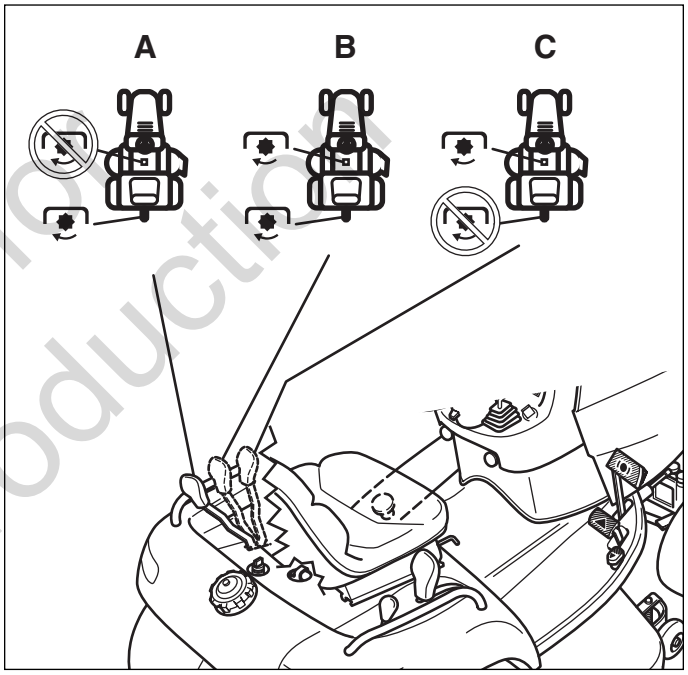

Figure 16. PTO Selector Lever
A. Rear 540 PTO Active Only
B. Mid and Rear PTO Active
C. Mid PTO Active Only

Engine Speed Selection

When engaging the rear PTO, set the throttle to FULL.

When disengaging the rear PTO, set the throttle to IDLE and allow the attachment to slow down.

While using an attachment, always set the throttle to FULL.

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540 Attachment Recommendations

GENERAL

This rear PTO was designed and tested with the 540 RPM rear tiller sold by Simplicity Manufacturing. There are a wide variety of other 540 attachments available from numerous manufacturers. It is impossible for us to test every one of them. There are a few basic, common-sense criteria that can be used to determine whether these attachments are suitable for use with your tractor.

In general, any attachment that:

- stalls the engine,
- requires the clutch to be toggled on and off while starting, or
- takes longer than 3 seconds to reach operating speed is too large.

PTO BOX OUTPUT SPEED & HORSEPOWER OUTPUT

This rear PTO box is designed to output a maximum of 18 horsepower at 540 RPM. Therefore it should only be used to run 540 RPM attachments that require 18 HP or less.

Using this PTO box to run attachments that require more than 18 HP or an input shaft speed other than 540 could result in poor performance, shortened equipment life, or equipment damage, and will void the tractor warranty. Improper use can also create an unsafe condition resulting in injury.

START-UP AND STOPPING LOADS

This PTO can be used with direct drive attachments that have small start-up and stopping loads like tillers or mower decks.

DO NOT use this PTO box with attachments that require a large amount of torque to start: for example, attachments such as direct drive chipper/shredders and large silo blowers cannot be used because their starting and stopping loads may damage the PTO clutch.

Large attachments that have their own clutching mechanism to lessen the load on the PTO box during starting and stopping may be used provided they do not exceed the 18 horsepower limit.

OVERLOAD PROTECTION

Any attachment used with this PTO box MUST have shear pin(s), shear bolt(s), a slip clutch, or some other device to prevent PTO box damage if the attachment should jam.

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MOWER DECK REMOVAL & INSTALLATION

NOTE: Perform mower removal and installation on a hard, level surface such as a concrete floor.

⚠ WARNING

Engage parking brake, disengage PTO, stop engine and remove key before attempting to install or remove the mower.

Removing the Mower Deck

1. Start the engine
2. Set the mower cutting height to its lowest setting.
3. Fully raise the attachment lift.
4. Stop the engine and wait for all moving parts to stop.
5. 48" & 60" mowers pivot the two front gauge wheels from mowing position to sliding position by pushing down on the top of the spindle and pivoting the wheel (see Figure 17). 54" mowers remove the hair pin clip, push down on the top of the spindle, and rotate the gauge wheel into sliding position (see Figure 17). Replace the hair pin clip.
6. Move the left rear slide wheel into slide position, if equipped (see Figure 18).
7. Start the engine.
8. Fully lower the attachment lift.
9. Set the cutting height to its highest setting.
10. Stop the engine and wait for all moving parts to stop.
11. Unhook the two lift chains (A, Figure 19) from the tractor lift arms.
12. Turn the ignition switch to RUN position, and set the mower cutting height to its lowest setting (it is not necessary to start the engine).
13. Turn the ignition switch to the OFF position.
14. Disconnect the electrical connection from the tractor and recap the tractor electrical socket. See Figure 20.
15. Remove the long hitch pin (B, Figure 21) and safety clip connecting the hitch (A) to the mower deck.
16. Remove the two small pins (C, Figure 21) connecting the hitch (A) to the tractor.
17. Remove the hitch (A, Figure 21) from the mower deck.
18. Disconnect the drive shaft (B, Figure 19) from the tractor by pulling back the locking collar (A, Figure 22) and pulling the shaft off the PTO.
19. Slide the deck out from under tractor.

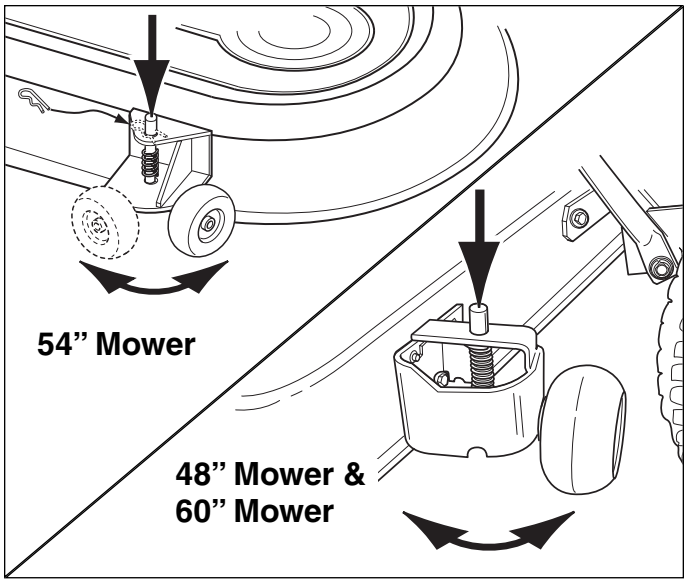

Figure 17. Pivoting the Gauge Wheels

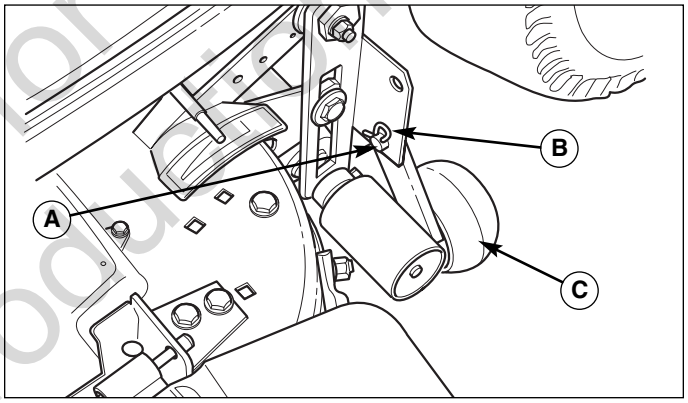

Figure 18. Rear Slide Wheel - 60" Mowers
A. Clevis Pin
B. Hair Pin Clip
C. Slide Wheel Arm

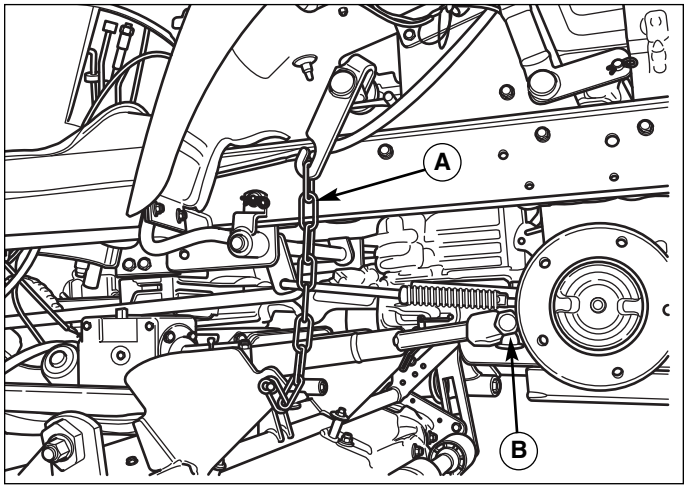

Figure 19. Mower Lift Chains
A. Lift Chain
B. PTO Shaft

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Installing the Mower Deck

1. Slide the mower under the tractor.
2. Hook up the electrical connection (Figure 20).
3. Start the engine.
4. Set the cutting height to maximum.
5. Fully lower the attachment lift.
6. Shut off the engine and wait for all moving parts to stop.
7. Make sure the mower lift chains (A, Figure 19) are directly below the lift arms. Attach the two mower lift chains to the tractor lift arms on both sides of the tractor (Figure 19).

NOTE: Use the 8th link for higher attachment lift; use the 9th link for greater below ground travel when mowing uneven ground.

8. Turn the ignition switch to the RUN position, and set the mower cutting height to minimum (it is not necessary to start the engine).
9. Turn the ignition switch to the OFF position.
10. Mount the hitch (A, Figure 21) to the deck using the long hitch pin (B).
11. Attach the hitch to the tractor using the two short pins (C, Figure 21) and safety clips.
12. Start the engine.
13. Fully raise the attachment lift.
14. Shut off the engine and wait for all moving parts to stop.
15. Pivot the two front gauge wheels from sliding position to mowing position by pushing down on the top of the spindle and pivoting the wheel (see Figure 17). Move the left rear slide wheel (Figure 18) into mowing position, if equipped.
16. Pull the drive shaft locking collar (A, Figure 22) back and slide the drive shaft all the way onto the tractor PTO shaft (B, Figure 19).
17. Release the locking collar and pull the shaft back until the locking collar locks into place on the drive shaft.

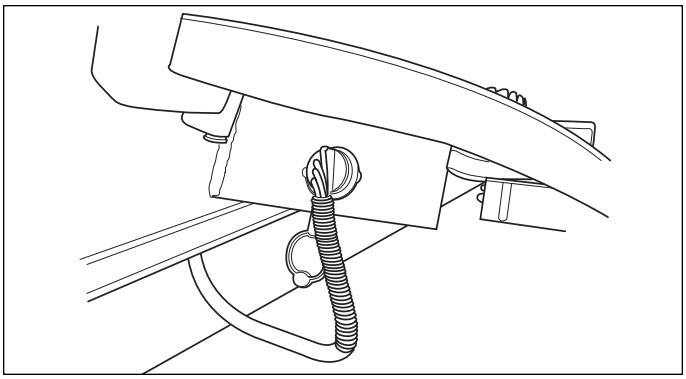

Figure 20. Mower Electrical Connection

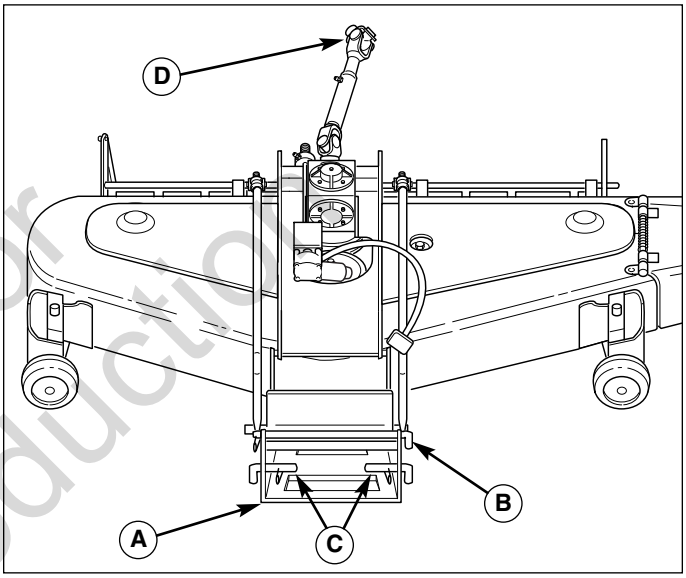

Figure 21. Front Hitch and Pins
A. Hitch
B. Long Hitch Pin
C. Short Hitch Pins
D. Drive Shaft

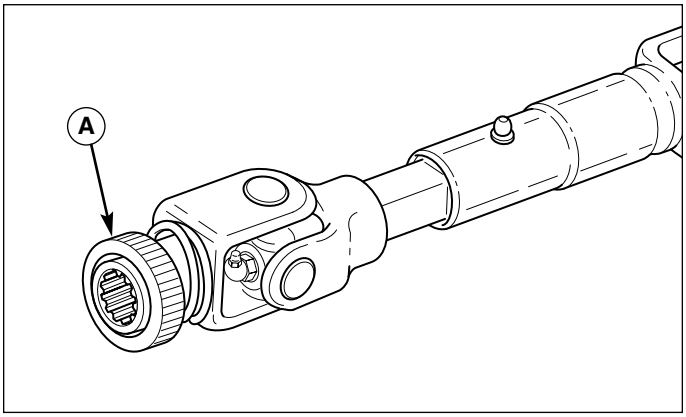

Figure 22. Mower Drive Shaft
A. Locking Collar

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ATTACHING A TRAILER

The maximum weight of a towed trailer should be less than 800 lbs (363 kg). Secure the trailer with an appropriately sized clevis pin (A, Figure 23) and clip (B).

Excessive towed loads can cause loss of traction and loss of control on slopes. Reduce towed weight when operating on slopes. The surface being driven on greatly impacts traction and stability. Wet or slippery surfaces can greatly reduce traction and the ability to stop or turn. Carefully evaluate the surface conditions before operating the tractor and trailer, and never operate on slopes greater than 10°. See SLOPE OPERATION and TOWED EQUIPMENT in the safety section of this manual for additional safety information.

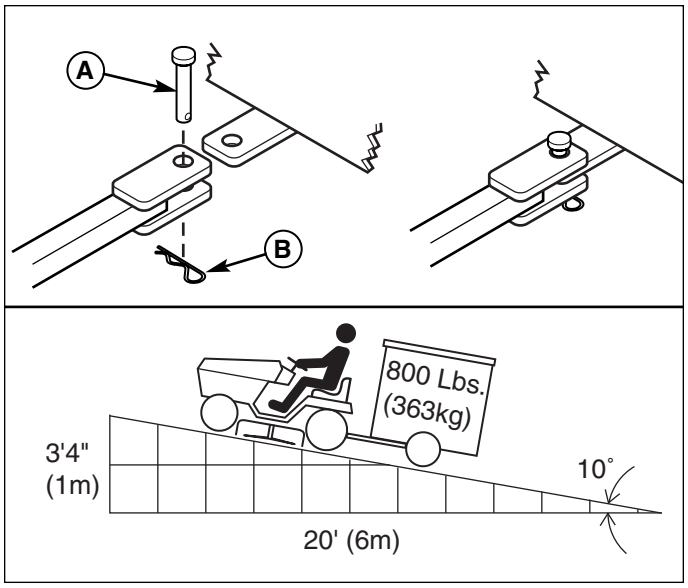

Figure 23. Trailer Weight Recommendations
A. Clevis Pin
B. Clip

STORAGE

⚠ WARNING

Never store the unit (with fuel) in an enclosed, poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion.

Fuel vapor is also toxic to humans and animals.

Before you store your unit for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

- Disengage the PTO, set the parking brake, and remove the key.
- Perform engine maintenance and storage measures listed in the engine owner's manual. This includes draining the fuel system, or adding stabilizer to the fuel (do not store a fueled unit in an enclosed structure - see warning).
- Battery life will be increased if it is removed, put in a cool, dry place and fully charged about once a month. If the battery is left in the unit, disconnect the negative cable.

Before starting the unit after it has been stored:

- Check all fluid levels. Check all maintenance items.
- Perform all recommended checks and procedures found in the engine owner's manual.
- Allow the engine to warm up for several minutes before use.

12 Volt Power Outlet

(Select Models)

⚠ CAUTION

Avoid Injury. Safe operation requires your full attention. Do not wear radio or music headphones while operating machine.

The 12-volt accessory power outlet is located in the left side pod. It can be used to power small electronic devices. The accessory must be rated at 14 amps or less.

Note: Operating a 12-volt accessory, especially with the engine at idle, may cause battery discharge. When not using the accessory power outlet *it must be covered with the rubber plug to prevent moisture from causing a short circuit. Entrance of water into* power outlet *can cause a short circuit.*

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Regular Maintenance

MAINTENANCE SCHEDULE

The following schedule should be followed for normal care of your tractor and mower.

SAFETY ITEMS	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Every 250 Hours	Spring & Fall
Check Safety Interlock System						•
Check Tractor Brakes						•
Check Mower Blade Stopping Time				•		•
TRACTOR MAINTENANCE ITEMS						
Check Tractor/Mower for Loose Hardware				•		
Clean Debris Out of Engine Compartment	•	•				
Clean Engine Oil Cooler (Air-Cooled)**			•			
Clean Radiator (Liquid Cooled)**	•	•				
Clean Transmission Oil Cooler			•			
Check Transmission Oil Level			•			
Change Transmission Oil & Filter ***					•	
Check Front Transaxle Oil Level (4WD Only)			•			
Check Mower Gear Box Oil Level						•
Check Tire Pressure			•			
Clean Battery & Cables				•		
Lubricate Tractor & Mower **			•			
Clean Deck & Check/Replace Mower Blades**				•		
ENGINE MAINTENANCE ITEMS						
Check Engine Oil Level	•					
Check / Clean Cooling Fins (Air Cooled)*	•			•		
Check Engine Coolant Level (Liquid Cooled)*			•			
Change Engine Coolant (Liquid Cooled)*						
Check / Change Engine Air Filter *						
Change Engine Oil & Filter *						
Inspect Spark Plug(s) (Gas Models)*						
Check / Replace Fuel Filter (Gas Models)*				•		
Drain Fuel Separator (Diesel Models)*						•

* Refer to engine owner's manual. Change original engine oil after initial break-in period.
** More often in hot (over 85° F: 30° C) weather or dusty operating conditions.
*** Service after the first 50 hours of operation, then every 250 hours of operation.

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ENGINE MAINTENANCE - GENERAL

Refer to the engine owner's manual for all engine maintenance procedures and recommendations.

CLEAN DEBRIS OUT OF ENGINE COMPARTMENT

Service Interval: Every 25 Hours, or As Necessary

Stop the engine and allow the unit to cool. Remove all debris from the engine compartment. Be sure all cooling fins, radiators, screens, and areas around the exhaust system are clean.

⚠ WARNING

Keep the unit free of grass, leaves, and other debris. Flammable debris many be ignited by hot engine parts causing serious injury or property damage.

CLEAN ENGINE OIL COOLER OR RADIATOR

Service Interval: Every 25 Hours, or As Necessary

Clean the oil cooler, radiator, or radiator screen with compressed air at regular intervals, or if dirty. The engine oil cooler (D, Figure 24) is located on the left-hand side of air-cooled engines. The radiator is located at the rear of the engine compartment on liquid-cooled models. Liquid cooled models also have a removable radiator screen (F, Figure 25; D, Figure 26). To access the radiator screen (D, Figure 26) on Kawasaki models, remove the hair pin clips (J) securing the transmission oil cooler (C). Clean all cooling system components.

CLEAN TRANSMISSION OIL COOLER

Service Interval: Every 25 Hours, or As Necessary

The transmission oil cooler (C, Figures 24, 25, & 26) is located behind the engine and should be cleaned with compressed air at regular intervals or if dirty.

CHECK ENGINE COOLANT LEVEL - LIQUID COOLED MODELS ONLY

Service Interval: Every 25 Hours, or As Necessary

The engine coolant level and quality should be checked before each use, when the engine is off and cool.

1. Check the coolant level in the overflow reservoir (A, Figure 25, & I, Figure 26,). Coolant should be between the "H" and "L" marks on the tank.
2. If the coolant level is below the "L" mark on the overflow reservoir, add coolant by shutting off the engine, allowing the engine to cool, removing the reservoir cap, and adding coolant. Proper coolant mix is a 50/50 mixture of ethylene glycol and distilled water.

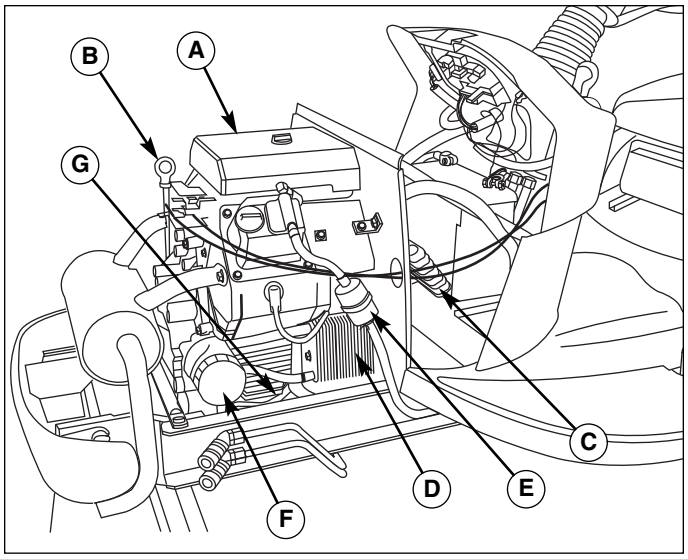

Figure 24. Engine - Kohler Models
A. Air Filter
B. Oil Dip Stick
C. Transmission Oil Cooler
D. Oil Cooler
E. Fuel Filter
F. Oil Filter
G. Oil Drain Tube

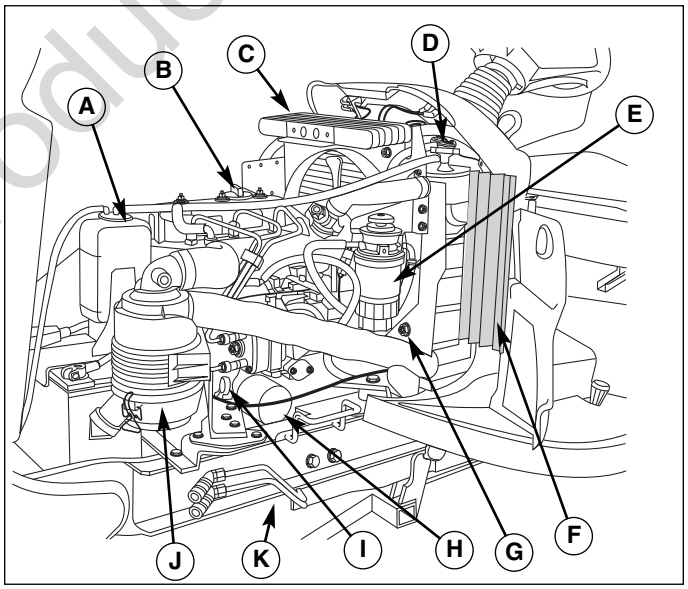

Figure 25. Engine - Diesel Models
A. Coolant Reservoir
B. Engine Oil Fill
C. Transmission Oil Cooler
D. Radiator Fill Cap
E. Water Separator
F. Radiator Screen
G. Radiator Drain Plug
H. Oil Filter
I. Oil Dipstick
J. Air Filter
K. Oil Drain Plug (Bottom of Engine)

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CHANGE ENGINE COOLANT - LIQUID COOLED MODELS ONLY

See Engine Manual for antifreeze recommendations and change intervals. See Figures 25 & 26 for drain plug locations.

⚠ WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. DO NOT spread hose clamps further than necessary. Ensure clamps grip hoses firmly over filter after installation.

CHANGE FUEL FILTER - GAS MODELS

Service Interval: Every 100 Hours, or As Necessary
Models with Kohler engines see E, Figure 24. Models with Kawasaki engines see F, Figure 26. If the filter is dirty or clogged, replace as follows:

1. Disconnect the negative battery cable.
2. Place a container below the filter to catch spilled fuel.
3. Using a pliers, open and slide hose clamps from fuel filter.
4. Remove hoses from filter.
5. Install new filter in proper flow direction in fuel line.
6. Secure fuel line with hose clamps.
7. Reconnect the negative battery cable when finished.

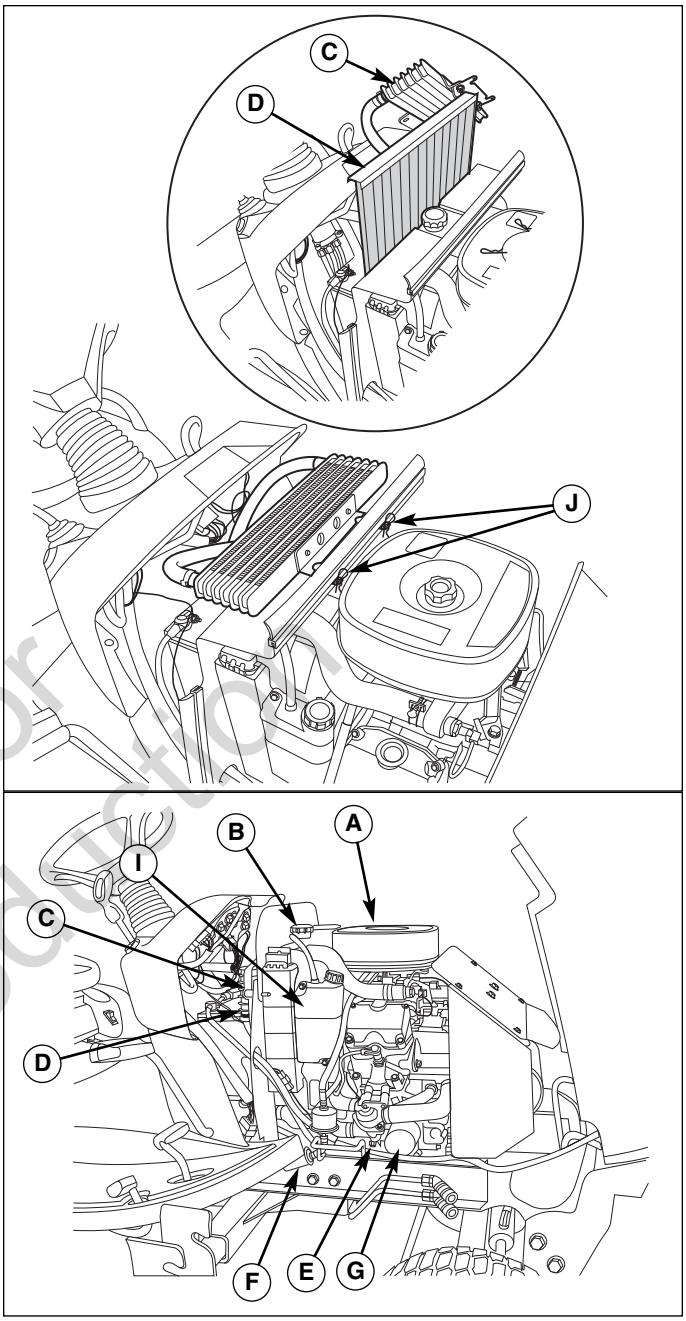

Figure 26. Engine - Kawasaki Models
A. Air Filter
B. Radiator Fill Cap
C. Transmission Oil Cooler
D. Radiator Screen
E. Cooling System Drain Plug
F. Fuel Filter
G. Oil Filter
H. Oil Drain Valve (Bottom LH Side of Engine)
I. Coolant Reservoir
J. Hair Pin Clips

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DRAIN FUEL SEPARATOR - DIESEL MODELS

Service Interval: Seasonally or as Needed

The fuel filter assembly has a built in water separator that should be drained when the indicator light in the dashboard display turns on or once per season. Replace the fuel filter element every 800 hours of operation or as required.

To drain the fuel filter:

1. Turn the engine off, set the parking brake, remove the ignition key, and wait for all moving parts to stop.
2. Allow the engine and surrounding areas to cool to room temperature.
3. Place a container under the fuel filter tube and turn the base of the filter assembly (E, Figure 25) approximately 1 turn.
4. Allow the filter to drain until all water and debris have drained out.
5. Turn the base of the filter back to close the fuel filter valve when finished draining.

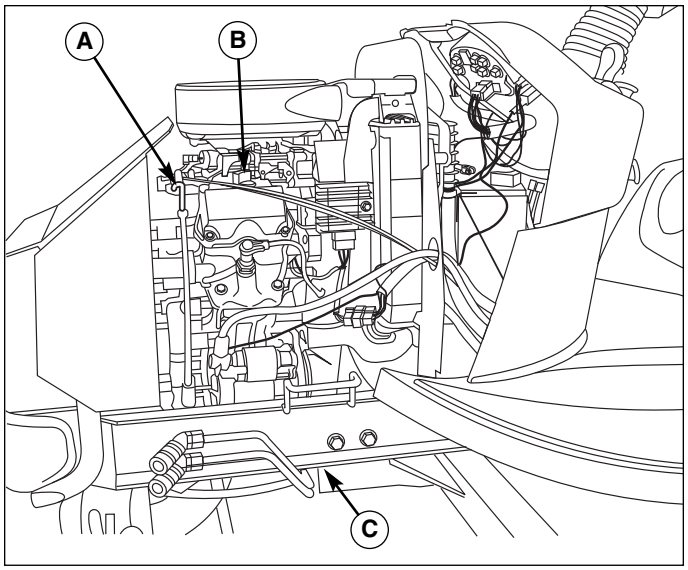

Figure 27. Engine - Kawasaki Models
A. Oil Dipstick
B. Oil Fill
C. Oil Drain Valve (Bottom of Engine)

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CHECK TRANSMISSION OIL LEVEL

Do not allow dirt, water, or other debris to enter the expansion chamber or transmission. Even a small amount of dirt can damage the transmission

Service Interval: Every 25 Hours

Oil Type: Type F Automatic Transmission Fluid

1. Clean the area around the transmission dip stick (A, Figure 28).
2. Remove the dip stick (A) from the transmission and wipe it clean.
3. Insert the dip stick into the transmission without threading it in. Remove the dip stick and read the oil level. The oil level should be even with the top of the hash mark area when the transmission is cold.

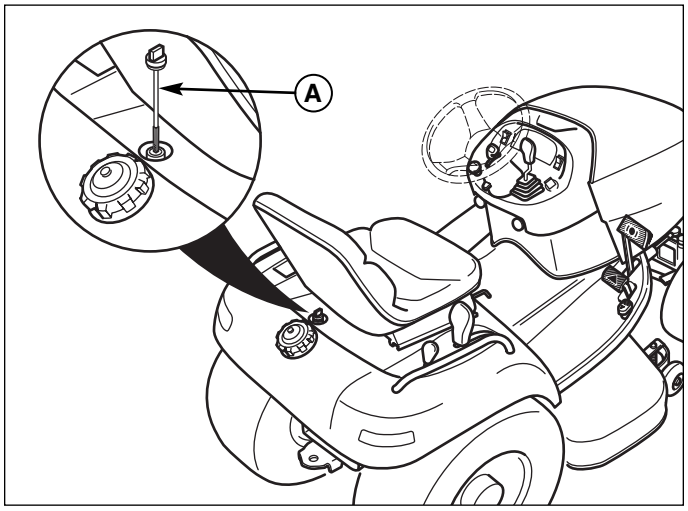

Figure 28. Transmission Fluid Check
A. Dip Stick

CHANGE TRANSMISSION OIL & FILTER

Do not allow dirt, water, or other debris to enter the expansion chamber or transmission. Even a small amount of dirt can damage the transmission

Service Interval: After first the 50 hours, then every 250 hours.

Oil Type: Type F Automatic Transmission Fluid

Oil Capacity: 2WD: 7.3-8.4 qt. (7-8L), 4WD: 7.7-8.8 qt. (7,3-8,3L), 4WD w/ 540PTO: 9-10 qt. (8,5-9,5L)

Oil Filter Part No.: 1726194

The transmission fluid and filter should be changed at the intervals listed above, or when performing repair work, or if fluid has become discolored from overheating or contamination.

Replace the transmission filter whenever changing transmission fluid. Make sure filter base and surrounding area is absolutely clean before removing the old filter.

1. Drain hydrostatic system by removing the 17mm drain plug (B, Figure 29).
2. Clean the base and replace the filter (A, Figure 29) using an appropriate filter wrench. Reinstall the drain plug.
3. Add Type F transmission fluid through the oil fill (see Figure 28).
4. Run tractor for several minutes until transmission is warm and check fluid level using the dip stick (A, Figure 28).

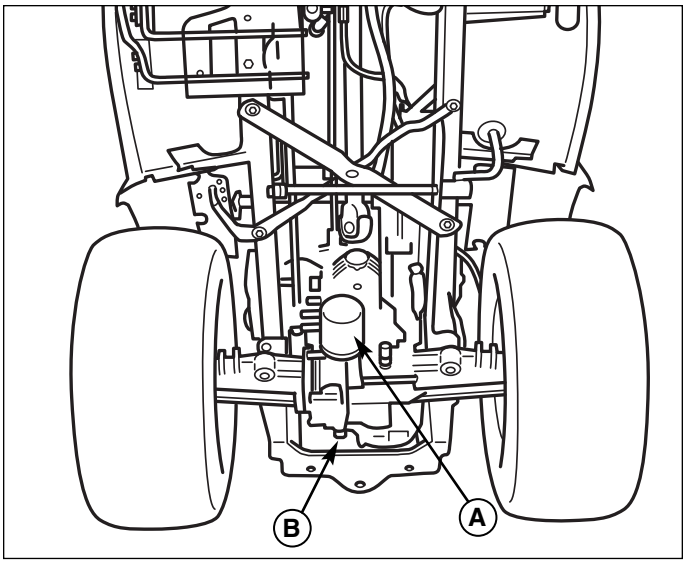

Figure 29. Transmission
A. Transmission Filter
B. 17mm Drain Plug

CHECK FRONT AXLE OIL LEVEL (4WD MODELS ONLY)

Service Interval: Every 25 Hours

Oil Type: 80W-90 Gear Lube

1. Clean the area around the front axle dip stick (A, Figure 30).
2. Remove the dip stick and wipe it clean.
3. Reinsert the dip stick without threading it in. Remove the dips stick and check the oil level. Oil should be even with the top of the hash marked area.

SERVICE NOTES: The axle oil does not require changing unless it has been contaminated. To change the oil, drain the main axle cavity and the two lower spindle cavities by removing the drain plugs. When filling the axle after a complete draining it is necessary to fill the lower spindle cavities through their fill holes as well as the main cavity. After the initial filling the oil level of all three cavities can be checked at the dip stick (A) as oil will seep from the main cavity to the lower ones.

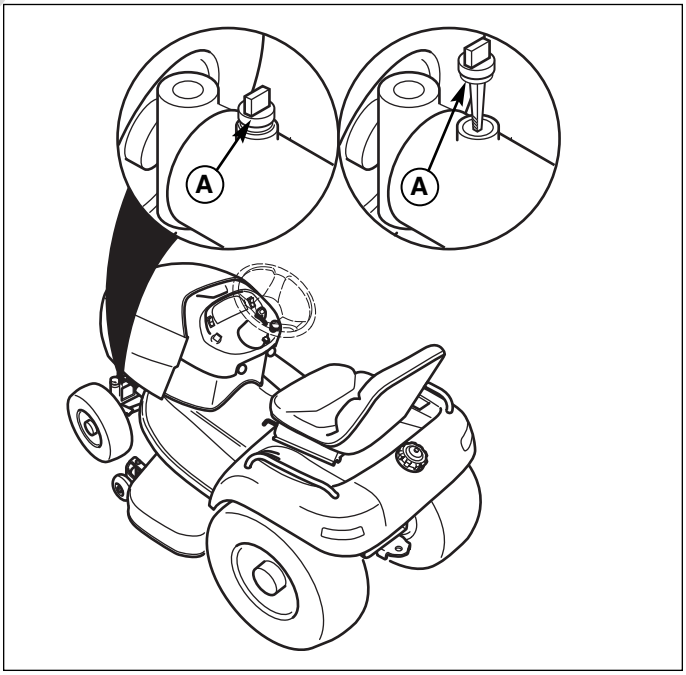

Figure 30. Front Axle Lube
A. Dip Stick

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CHECK MOWER DECK GEAR BOX OIL

Service Interval: Every Fall & Spring

To check the mower deck gear box oil:

1. Place a shop towel under the side opening to keep oil off the belt and pulleys.
2. Remove the side level plug (B, Figure 31) of the gear box. Oil should come out of the side hole. If not add SAE 85W-90 oil through the top fill hole (A) until oil comes out the side fill hole.
3. Replace the plugs and wipe up any spilled oil.

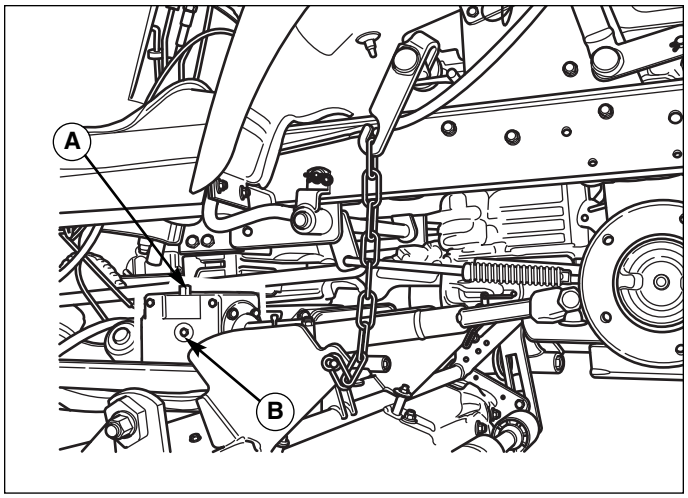

Figure 31. Gear Box Fill Plug Location
A. Top Fill Plug
B. Side Level Plug

SAFETY INTERLOCK SYSTEM CHECK

Service Interval: Every Fall & Spring

Check the function of the safety interlock system using the test procedure found on page 7 of this manual. If the tractor fails any of the tests, see your dealer.

BLADE BRAKE CHECK

Service Interval: Every 100 Hours or Fall & Spring

The mower should come to a complete stop within five seconds after PTO switch is turned off.

1. With tractor in neutral, PTO disengaged and operator in seat, start the engine. Make sure the area is clear of bystanders.
2. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower to stop.
3. If the mower does not stop within five seconds, see your dealer.

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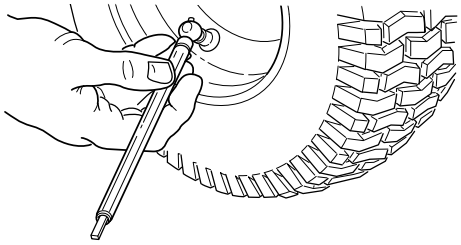
CHECK TIRE PRESSURES

Service Interval: Every 25 Hours

Tire pressure should be checked periodically, and maintained at the levels shown in the chart. Note that these pressures may differ slightly from the “Max Inflation” stamped on the side-wall of the tires. The pressures shown provide proper traction, improve cut quality, and extend tire life.



Size	Tread	PSI	bar
26 x 12-12	Turf	12-15	,83-1,03
18 x 8.5-8	Turf	20-22	1,38-1,52
26 x 12-12	Field	10-12	,69-,83
18 x 8.5-10	Field	20-22	1,38-1,52

Figure 32. Tire Pressure

BATTERY MAINTENANCE

⚠ WARNING

When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool.

Cleaning the Battery and Cables

Service Interval: Every 100 Hours

1. Disconnect the cables from the battery, negative cable first (C, Figures 33 & 34).
2. Remove the battery clamp (B) and battery. On diesel models the battery clamp is secured with bolts to both frame rails (D, Figure 33).
3. Clean the battery compartment with a solution of baking soda and water.
4. Clean the battery terminals and cable ends with a wire brush and battery terminal cleaner until shiny.
5. Reinstall the battery in the battery compartment, and secure with the battery clamp (B).
6. Reattach the battery cables, positive cable first (A).
7. Coat the cable ends and battery terminals with petroleum jelly or non-conducting grease.

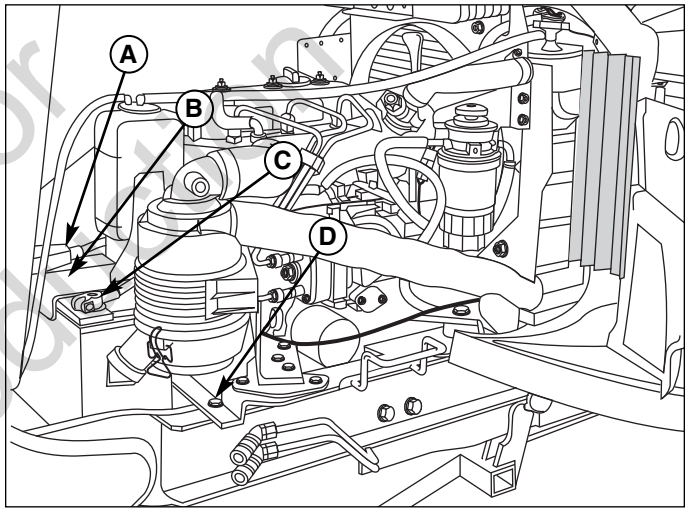


Figure 33. Battery - Diesel Models
A. Positive Cable & Cover
B. Battery Clamp
C. Negative Cable
D. Battery Clamp Bolt (Both Sides)

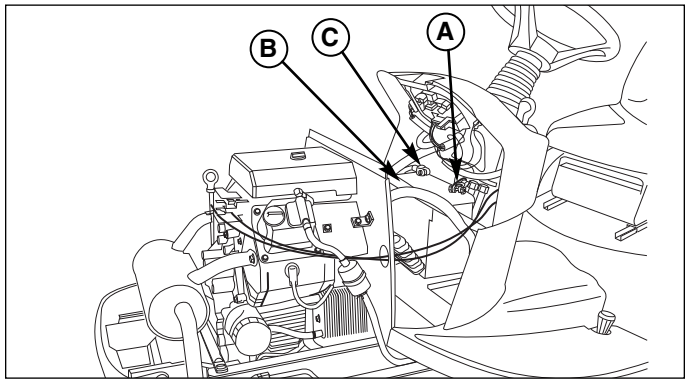


Figure 34. Battery - Gas Models
A. Positive Cable & Cover
B. Battery Clamp
C. Negative Cable

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LUBRICATION

Service Interval: Every 25 Hours

Lubricate the unit at the locations shown in Figures 35-41 as well as the lubrication points listed. Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts and pulleys. Wipe surfaces clean before and after lubrication.

Grease:

- steering linkage
- foot pedal
- mower linkage
- transmission idler assembly pivot
- rear axle shafts (remove wheel hubs)
- front axle where it contacts the frame
- all drive shaft universal joints
- mower belt tension bracket pivots

Use grease fittings when present. Automotive lithium grease is recommended.

Oil:

- control linkage
- seat adjustment assembly
- brake linkage
- mower deck height adjustment linkage
- manual lift lever

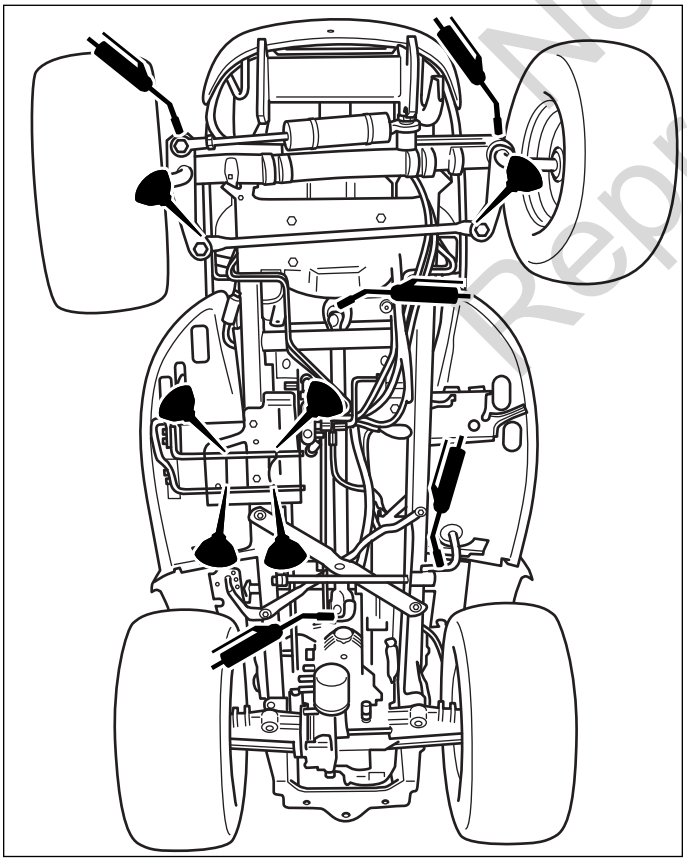

Figure 35. Lubricating the Tractor

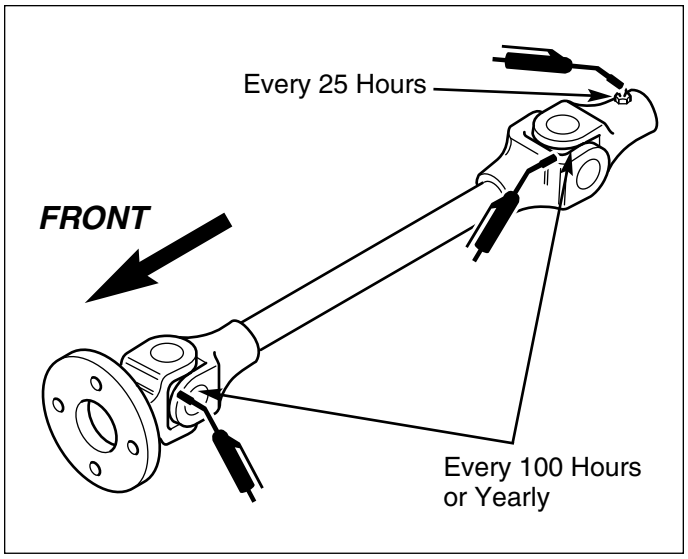

Figure 36. Engine Drive Shaft

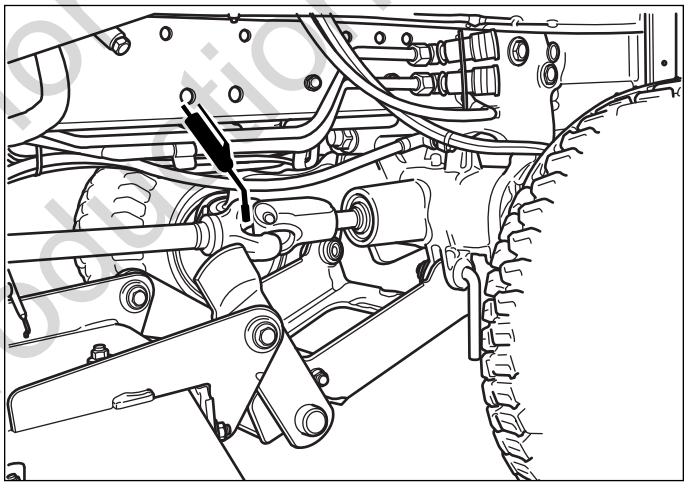

Figure 37. Front Axle Drive Shaft

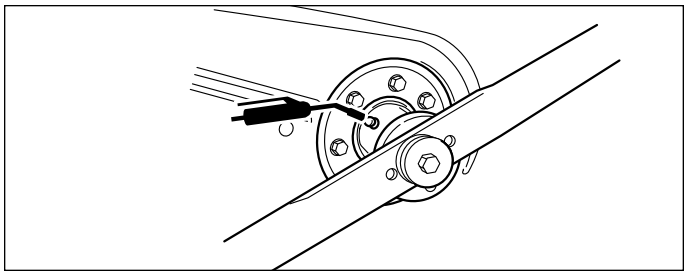

Figure 38. Arbor Lubrication Point

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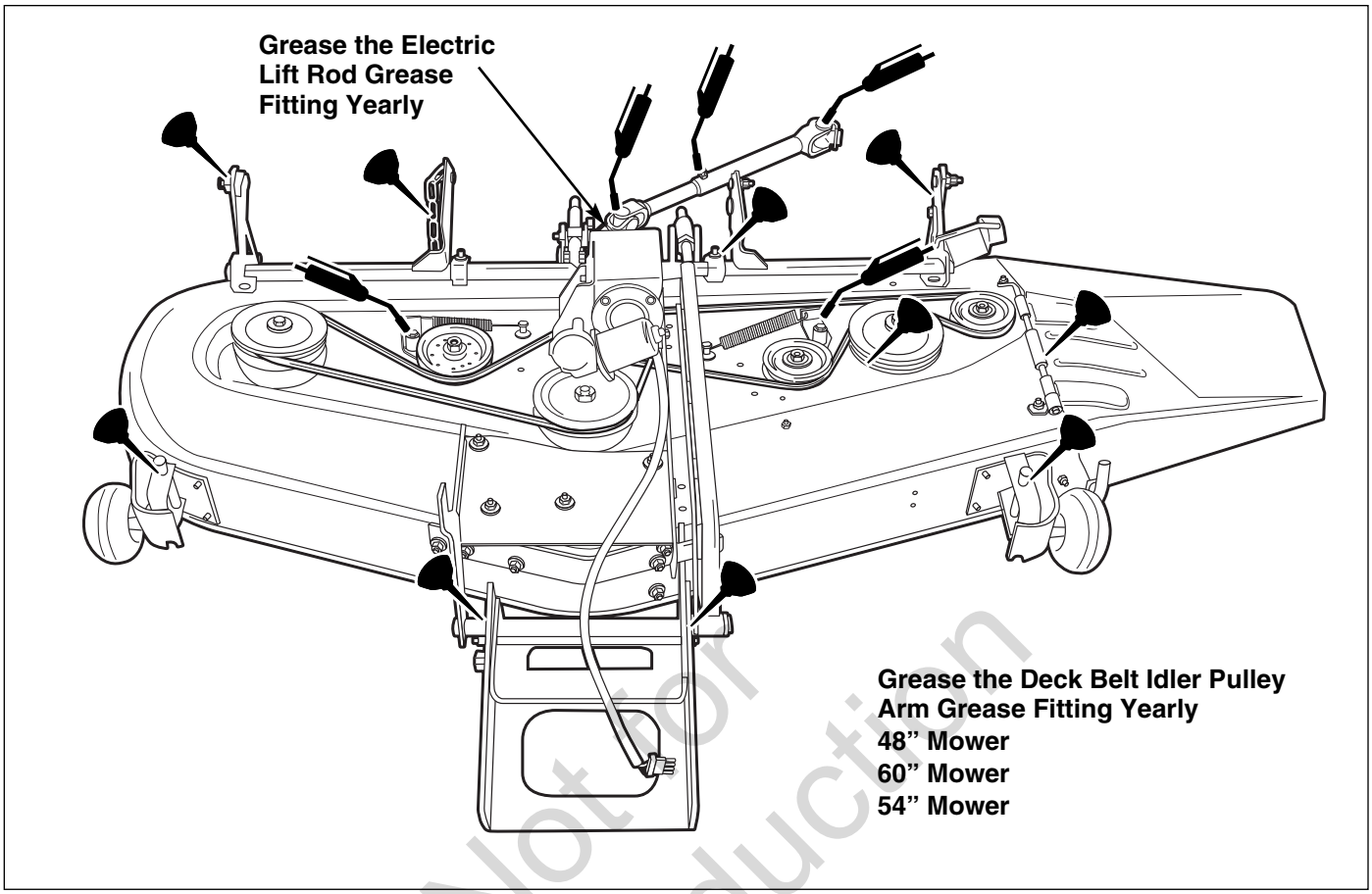

Figure 39. Deck Lubrication

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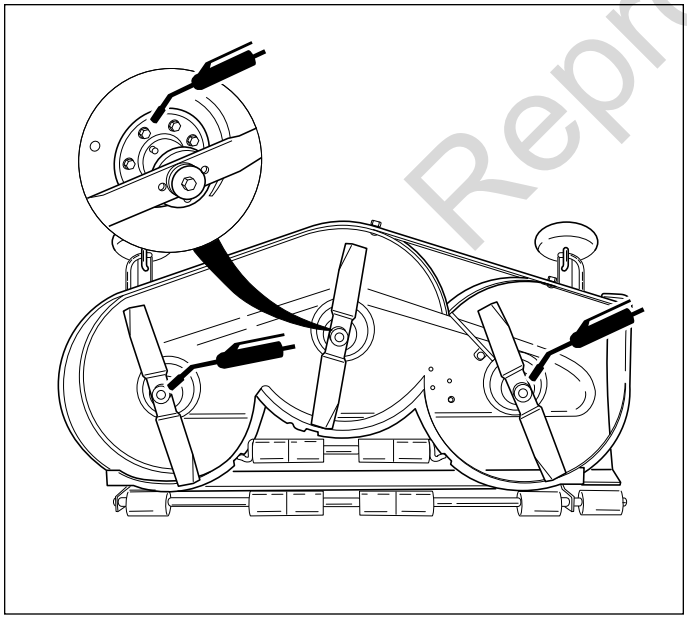

Figure 40. Mower Arbor Lubrication

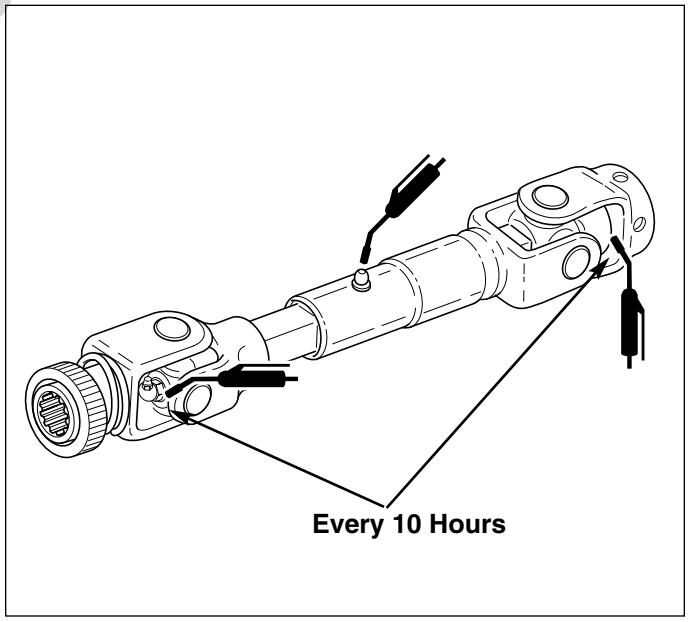

Figure 41. Mower Drive Shaft

SERVICING THE MOWER BLADES

⚠WARNING

For your personal safety, do not handle the sharp mower blades with bare hands. Careless or improper handling of blades may result in serious injury.

1. Remove mower from the tractor. See Mower Installation & Removal.
2. Blades should be sharp and free of nicks and dents. If not, sharpen blades as described in following steps.
3. To remove blade for sharpening, use a wood block to hold blade while removing the blade mounting capscrew (Figure 42).
4. Use a file to sharpen blade to fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged, it should be replaced.
5. Balance the blade as shown in Figure 43. Center the blade's hole on a nail lubricated with a drop of oil. A balanced blade will remain level.
6. Reinstall each blade with the tabs pointing up toward deck as shown in Figure 44. Secure with a capscrew (D, Figure 44), spring washer (C), and spline washer (B). Be certain the spline washer is aligned with the shaft splines. Use a wood block to prevent blade rotation and torque capscrews to 45-55 ft.lbs. (61-75 N.m.).

⚠ WARNING

For your personal safety, blade mounting capscrews must each be installed with a hex washer and spring washer, then securely tightened. Torque blade mounting capscrew to 45-55 ft. lbs. (61-75 N.m.)

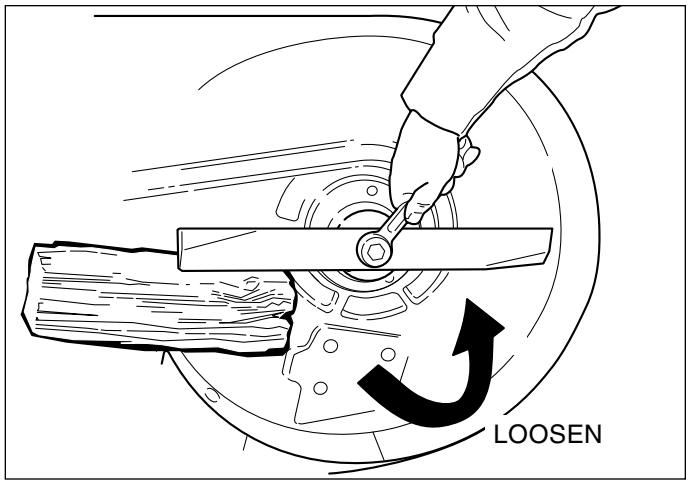

Figure 42. Removing the Blade

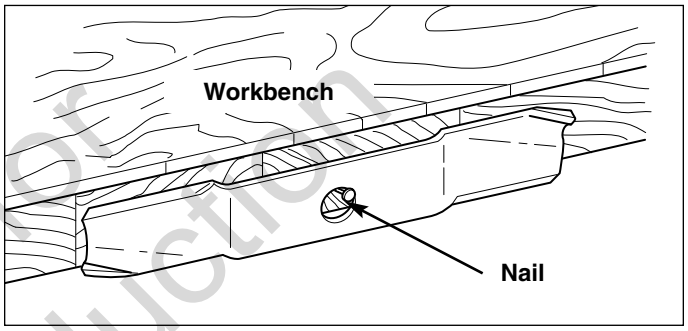

Figure 43. Balancing The Blade

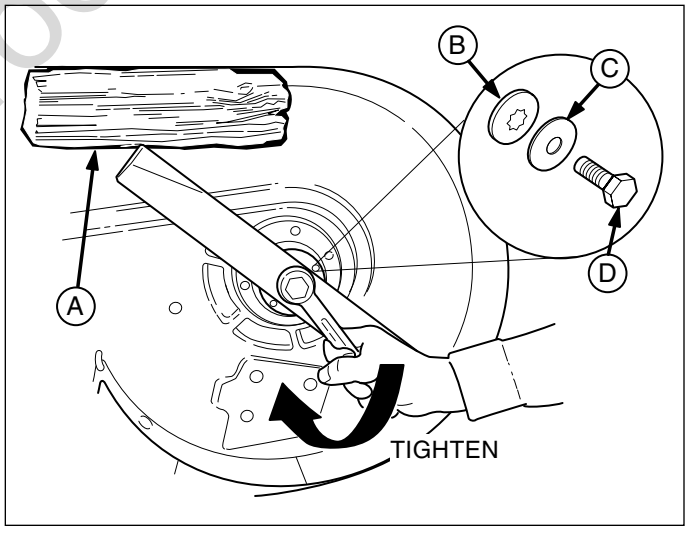

Figure 44. Installing The Blade
A. Wood Block
B. Spline Washer
C. Spring Washer
D. Capscrew

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MAINTENANCE RECORDS

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Troubleshooting, Adjustment, & Service

TROUBLESHOOTING

While normal care and regular maintenance will extend the life of your equipment, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly.

The troubleshooting guide below lists the most common problems, their causes, and remedies.

See the information on the following pages for instructions on how to perform most of these minor adjustments and service repairs yourself. If you prefer, all of these procedures can be performed for you by your local authorized dealer.

⚠ WARNING

To avoid serious injury, perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged.

Always remove the ignition key, disconnect the spark plug wire and fasten it away from the plug before beginning the maintenance, to prevent accidental starting of the engine.

TROUBLESHOOTING THE TRACTOR

PROBLEM	CAUSE	REMEDY
Engine will not turnover or start.	1. Brake pedal not depressed.	Fully depress brake pedal.
	2. PTO (electric clutch) switch in ON position.	Place in OFF position.
	3. Cruise control engaged.	Move lever to Neutral position.
	4. Out of fuel.	If engine is hot, allow it to cool, then refill the fuel tank.
	5. Engine flooded.	Disengage choke.
	6. Circuit breaker tripped.	Wait one minute for automatic reset. Replace if defective.
	7. Battery terminals require cleaning.	See Battery Maintenance Section.
	8. Battery discharged or dead.	Recharge or replace.
	9. Wiring loose or broken.	Visually check wiring & replace broken or frayed wires. Tighten loose connections.
	10. Solenoid or starter motor faulty.	See your dealer.
	11. Safety interlock switch faulty	See your dealer.
	12. Spark plug(s) faulty, fouled or incorrectly gapped.	Clean and gap or replace. See engine manual.
	13. Water in fuel.	Drain fuel & refill with fresh fuel. Replace fuel filter.
	14. Gas is old or stale.	Drain fuel & refill with fresh fuel. Replace fuel filter.
Engine starts hard or runs poorly.	1. Fuel mixture too rich.	Clean air filter. Check choke adjustment
	2. Spark plug(s) faulty, fouled, or incorrectly gapped.	Clean and gap or replace. See engine manual.
Engine knocks.	1. Low oil level.	Check/add oil as required.
	2. Using wrong grade oil.	See engine manual.
Excessive oil consumption.	1. Engine running too hot.	Clean: engine fins, blower screen, radiator, oil cooler, and radiator screen.
	2. Using wrong weight oil.	See engine manual.
	3. Too much oil in crankcase.	Drain excess oil.
Engine exhaust is black.	1. Dirty air filter.	Replace air filter. See engine manual.
	2. Choke closed.	Open choke.
Engine runs, but tractor will not drive.	1. Ground speed control pedals not depressed.	Depress pedals.
	2. Transmission release lever in “push” position.	Move into drive position.
	3. Drive belt is broken.	See Drive Belt Replacement.
	4. Drive belt slips.	See cause and remedy below.
	5. Parking brake is engaged.	Disengage parking brake.

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Tractor Troubleshooting Cont.

Brake will not hold.	1. Brake is incorrectly adjusted. 2. Internal brake worn.	See Brake Adjustment. See your dealer.
Tractor steers hard or handles poorly.	1. Hydraulic system filter clogged. 2. Improper tire inflation.	Replace filter. Check and correct.

TROUBLESHOOTING THE MOWER

PROBLEM	CAUSE	REMEDY
Mower will not raise.	1. Lift linkage not properly attached or damaged. 2. Dirt in hydraulic lines.	Attach or repair. Change hydraulic system filter.
Mower cut is uneven.	1. Mower not leveled properly. 2. Tractor tires not inflated equally or properly. 3. Cutting with attachment lift in raised position.	See Mower Adjustment. See Maintenance Section. Lower attachment lift.
Mower cut is rough looking.	1. Engine speed too slow. 2. Ground speed too fast. 3. Blades are dull. 4. Mower drive belt slipping because it is oily or worn. 5. Check PTO (Electric Clutch) Adjustment. 6. Blades not properly fastened to arbors.	Set to full throttle. Slow down. Sharpen or replace blades. See Mower Blade Service. Clean or replace belt as necessary. See Adjustments Section. See Servicing the Mower Blades.
Engine stalls easily with mower engaged.	1. Engine speed too slow. 2. Ground speed too fast. 3. Mower choked with grass. 4. Cutting height set too low. 5. Discharge chute jamming with cut grass. 6. Engine not up to operating temperature. 7. Starting mower in tall grass.	Set to full throttle. Slow down. Clean out mower deck. Cut tall grass at maximum cutting height during first pass. Cut grass with discharge pointing toward previously cut area. Run engine for several minutes to warm-up. Start the mower in a cleared area.
Excessive mower vibration.	1. Blade mounting screws are loose. 2. Mower blades, arbors, or pulleys are bent. 3. Mower blades are out of balance. 4. Mower choked with grass.	Tighten to 45-55 ft.lbs. (61-75 N.m.). Check and replace as necessary. Remove, sharpen, and balance blades. See Servicing the Mower Blades. Clean out mower deck.
Excessive belt wear or breakage.	1. Bent or rough pulleys. 2. Using incorrect belt. 3. Excessive debris under cover.	Repair or replace. Replace with correct belt. Remove covers and clean out mower deck.
Mower drive belt slips or fails to drive.	1. Idler pulley spring broken or not properly attached. 2. Excessive debris under covers. 3. Mower drive belt broken.	Repair or replace as needed. Clean out mower deck. Replace drive belt.

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SEAT ADJUSTMENT

Seat Slide Adjustment

The seat can be adjusted forward and back. Move the lever (A, Figure 45), position the seat as desired, and release the lever to lock the seat into position.

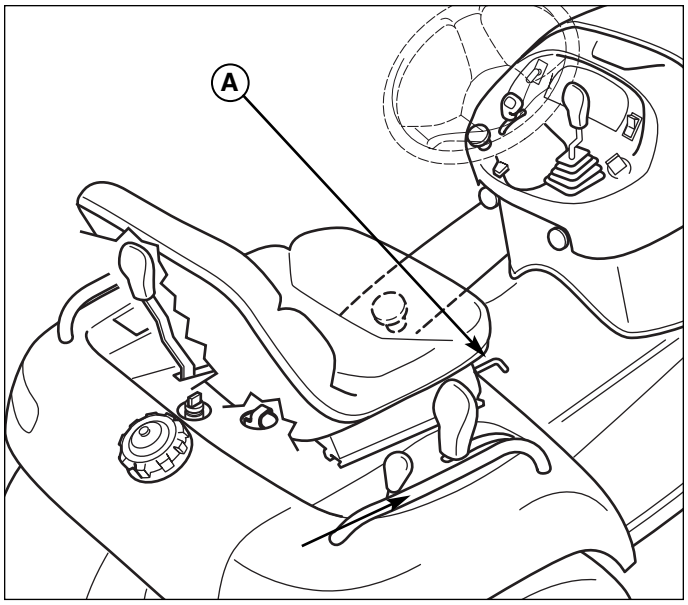

Figure 45. Seat Adjustment
A. Seat Adjustment Lever

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BRAKE ADJUSTMENT

1. Disengage the PTO, stop the engine, block the wheels, remove the ignition key, and engage the parking brake.
2. Remove the mower deck (see Mower Deck Removal).
3. Locate the brake spring (A, Figure 46). Measure the length of the compressed brake spring with the parking brake on. The compressed brake spring length should be 3-1/2 to 3-3/4” (8,9-9,5cm).
4. If necessary, adjust the brake spring locknut to achieve the correct compressed spring length.

   If this does not correct a braking problem, see your dealer.

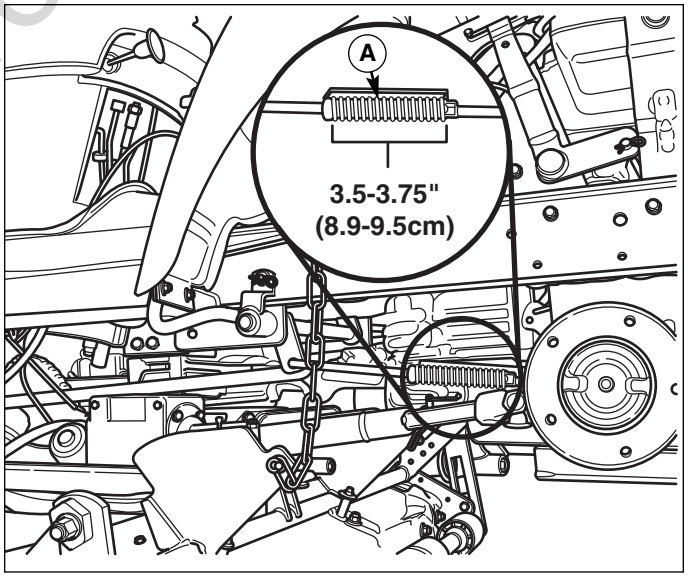

Figure 46. Brake Adjustment
A. Brake Spring

HEADLIGHT REPLACEMENT

1. Open the hood.
2. Remove the forward heat shield.
3. Remove the light bulb socket from the bezel by twisting it counterclockwise and pulling it out.
4. Use a rag or gloves to remove and replace the light bulb with an identical halogen bulb. **DO NOT TOUCH THE BULB WITH YOUR BARE HANDS.**
5. Reinstall the socket into the bezel.

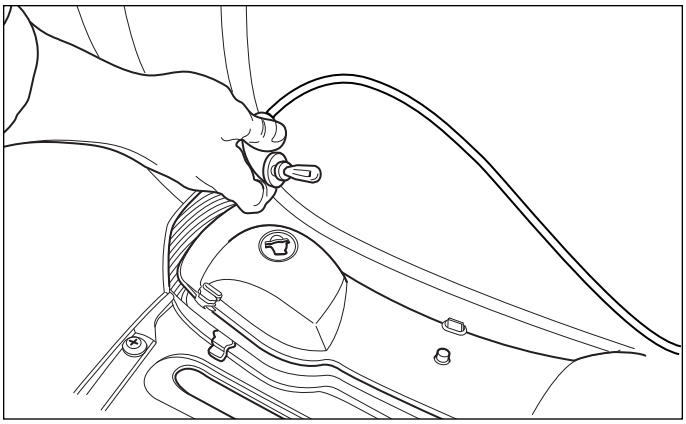

Figure 47. Headlight Replacement

TAILLIGHT & DASH LIGHT REPLACEMENT

1. Twist the socket counterclockwise and pull out to remove it from the taillight or dashboard display.
2. Remove and replace the old bulb with a new identical bulb.
3. Reinstall the socket into the taillight bezel or dashboard display.

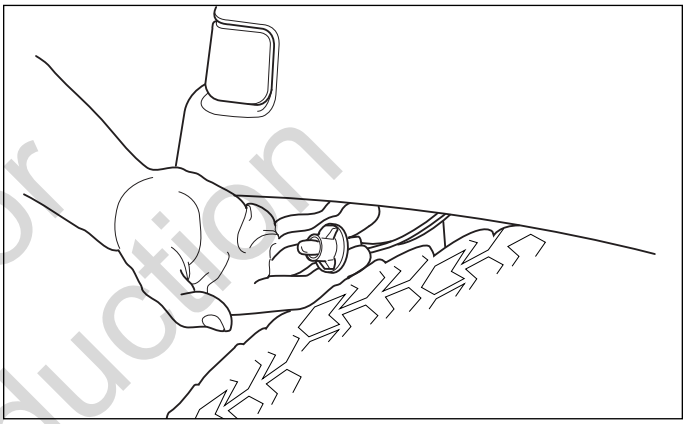

Figure 48. Taillight Replacement

BATTERY CHARGING

⚠ WARNING

Keep open flames and sparks away from the battery; the gasses coming from it are highly explosive. Ventilate the battery well during charging.

A dead battery or one too weak to start the engine may be the result of a defect in the charging system or other electrical component. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Regular Maintenance Section.

To charge the battery, follow the instructions provided by the battery charger manufacturer as well as all warnings included in the safety rules sections of this book. Charge the battery until fully charged (until the specific gravity of the electrolyte is 1.250 or higher and the electrolyte temperature is at least 60° F). Do not charge at a rate higher than 10 amps.

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MOWER ADJUSTMENTS

⚠ CAUTION

DO NOT remove the mower deck baffles. The baffles help prevent grass clippings from becoming airborne and plugging up the engine cooling fins.

Roller Bracket Adjustment (60" Mower Only)

The anti-scalping rollers (A, Figure 49) can be adjusted for different cutting heights by positioning roller brackets on the mower baffle (B).

1. Remove bolts, lockwashers and nuts securing roller bracket to baffle.
2. If you typically cut using the lower half of the mower cutting height range, the roller brackets should be positioned in the upper set of holes.
3. Use the lower set of holes if mowing is usually done in the upper half of the cutting height range, or if scalping occurs at lower cutting heights due to uneven terrain.

Gauge Wheel Adjustment (54" Mower Only)

The mower gauge wheels can be placed in two positions depending on the height of cut. When using higher cutting heights, set the wheels in the lower position. When using lower cutting heights, set the wheels in the upper position. To adjust:

1. Remove the hair pin clip (A, B, Figure 50).
2. For upper position, install the pin (A) through the spindle above the bracket (C). For the lower position, push down on the top of the spindle, and install the hair pin clip (B) below the top of the bracket (C).

⚠ WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key, then disconnect the spark plug wires and fasten them away from the spark plugs.

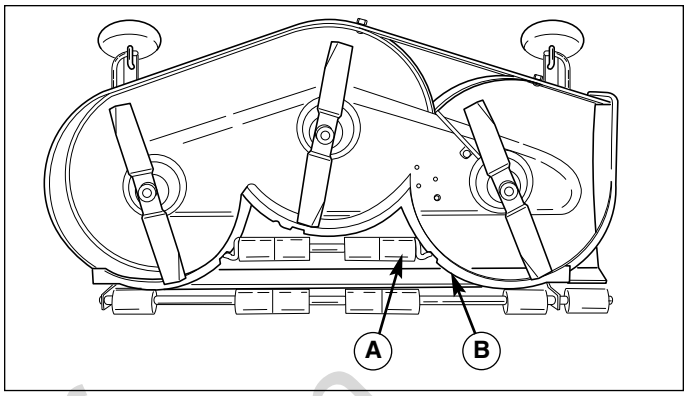

Figure 49. Anti-Scalping Rollers
A. Rollers
B. Mower Baffle

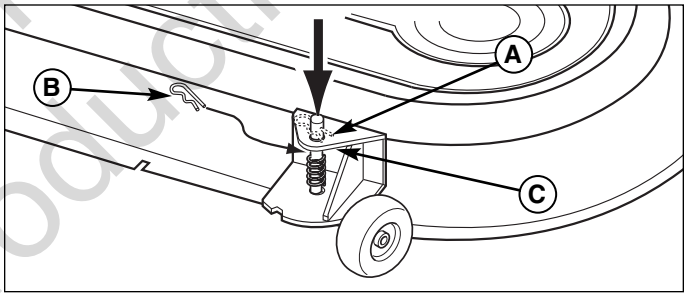

Figure 50. Gauge Wheel Adjustment
A. Hair Pin (Upper Position)
B. Hair Pin (Lower Position)
C. Gauge Wheel Bracket

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Leveling The Mower

If the cut is uneven, the mower may need leveling.

NOTE: Unequal or improper tire pressure may also cause an uneven cut.

SIDE TO SIDE LEVELING

1. With the mower installed, place the tractor on a smooth, level surface such as a concrete floor. Turn the front wheels straight forward.
2. Place the cutting height adjust in high-cut position.
3. Set the parking brake, turn off the ignition, and remove the key.
4. Check for bent blades and replace if necessary.
5. Arrange the mower blades so that they are pointing from side-to-side.
6. Measure the distance between the outside tips of each blade and the ground. If there is more than 1/8" (3mm) difference between the measurements on each side, proceed to step 7. If the difference is 1/8" (3mm) or less, proceed to Front To Back Leveling.
7. See Figure 51. Loosen the outside nut (A) then turn the eccentric nut (B) to raise or lower the left side of the deck. Repeat on the right side of the deck. When the mower deck is level, hold the eccentric nut while tightening the outside nut.

FRONT TO BACK LEVELING

1. Arrange the blades so they face front-to-back.
2. Measure the distance from the ground to the front of the front blade and from the rear tips of the rear blades. Front tips should be 1/8” to 1/4” higher than the rear tips. If not, proceed to step 3.
3. Loosen the rear jam nut (A) on the arm assembly (see Figure 52). Adjust the jam nut on the arm until the mower deck is level or the front is 1/8” to 1/4” higher.

⚠ WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key, then disconnect the spark plug wires and fasten them away from the spark plugs.

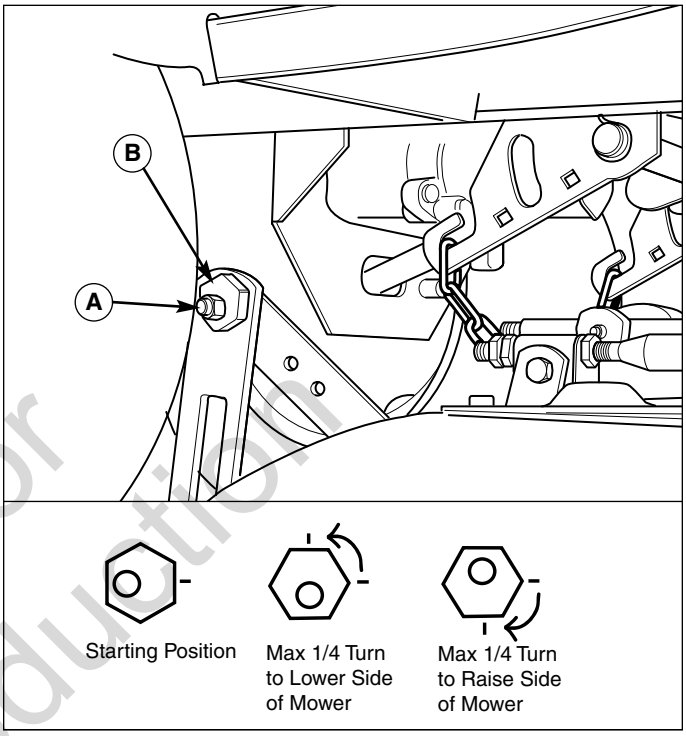

Figure 51. Side-to-Side Adjustment
A. Outside Nut
B. Eccentric Nut

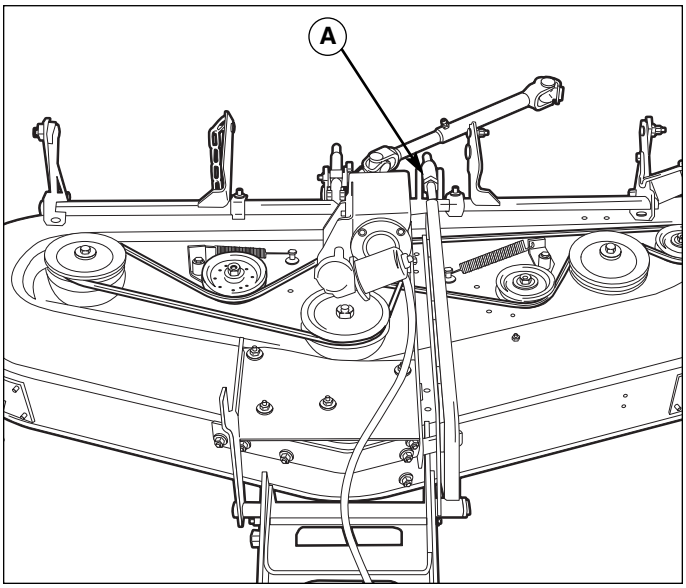

Figure 52. Front to Back Leveling
A. Jam Nuts

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To avoid damaging belts, DO NOT PRY BELTS OVER PULLEYS.

MOWER BELT REPLACEMENT

60” Mower Drive Belt Replacement

NOTE: The left drive belt may be replaced without removing the right belt. To replace the right belt, the left belt must also be removed. The procedure below covers removal of both belts.

1. Remove the mower deck. See Mower Removal and Installation
2. Remove the screws securing both deck belt covers and remove the covers.
3. Using a spring puller or a small rope loop, release both idler arm tension springs (B, Figure 54).
4. Remove the left drive belt (E) from the arbor pulleys (A). Twist the belt and slide it between the gear box and mower deck shell.
5. Remove the right drive belt (D) from the arbor pulleys (A). Twist the belt and slide it between the gear box and mower deck shell.
6. Inspect all pulleys for wear or bearing damage.
7. Lubricate the idler arm pivots with multi-purpose lithium grease and check for free movement.
8. Install the new right drive belt as shown in the diagram in Figure 53.
9. Install the new left drive belt as shown in the diagram in Figure 53.
10. Install both idler tension springs (B).
11. Install both belt covers.
12. Install the mower deck and run under no-load for five minutes to break in the new belt.

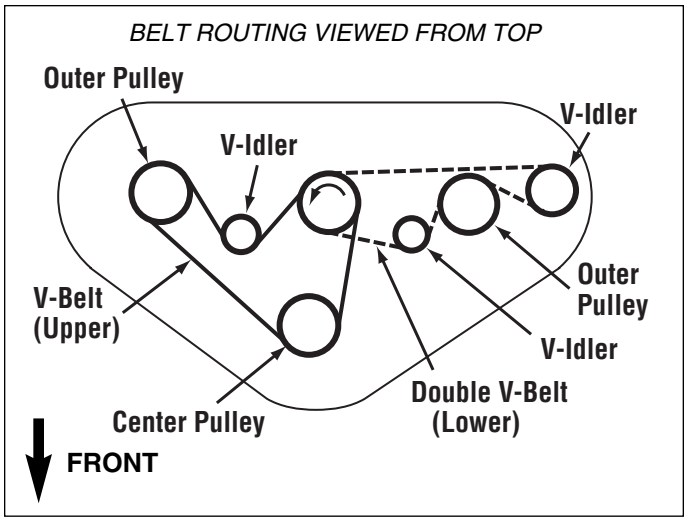

Figure 53. 60” Mower Deck Belt Routing

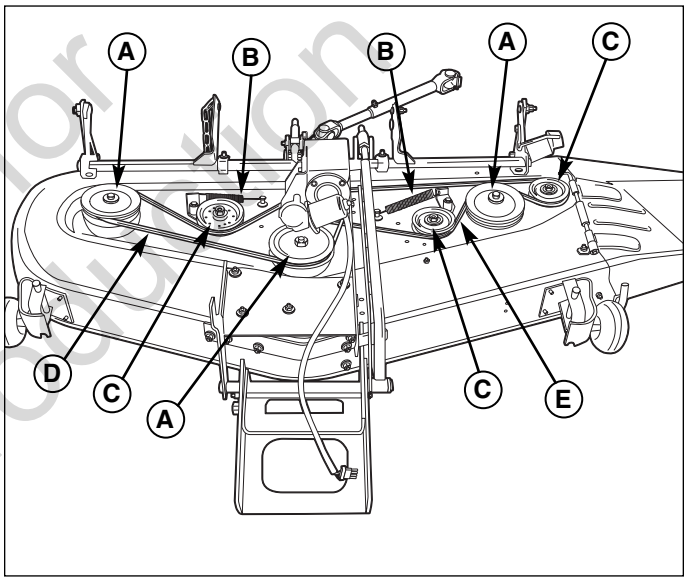

Figure 54. 60” Mower Deck - Covers Removed
A. Arbor Pulleys
B. Idler Arm Tension Springs
C. Idler Pulleys
D. RH Drive Belt
E. LH Drive Belt

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54" Mower Drive Belt Replacement

1. Remove the mower deck. See Mower Removal and Installation
2. Remove the screws securing the belt covers and remove the belt covers.
3. Using a spring puller or a small rope loop, release the idler assembly tension spring (B, Figure 56).
4. Remove the old drive belt (D).
5. Inspect all pulleys for wear or bearing damage.
6. Lubricate the idler arm pivot with multi-purpose lithium grease and check for free movement.
7. Install the new drive belt as shown in the diagram in Figure 55.
8. Reinstall the belt covers. Be sure the alignment notches are centered on the screws.
9. Install the mower deck and run under no-load for five minutes to break in the new belt.

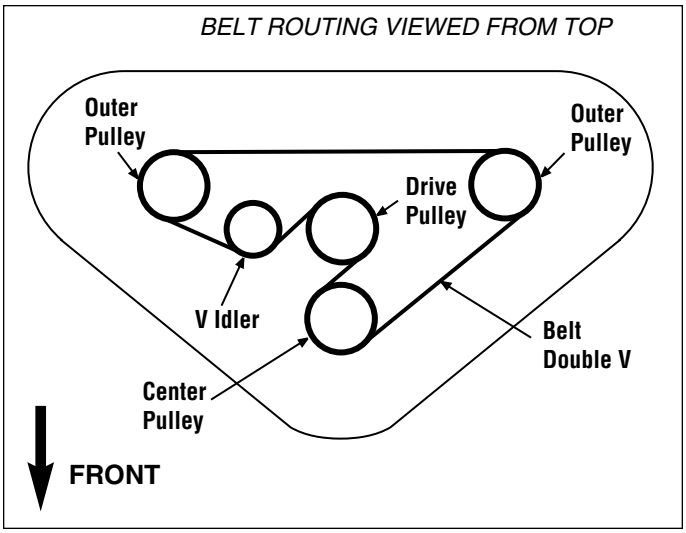

Figure 55. 54" Mower Belt Routing

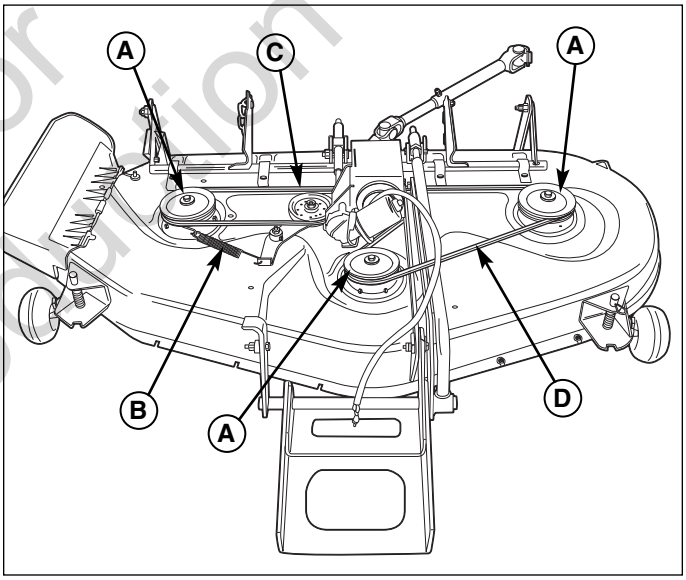

Figure 56. 54" Mower Deck - Covers Removed
A. Arbor Pulleys
B. Idler Arm Tension Spring
C. V-Idler Pulley
D. Drive Belt

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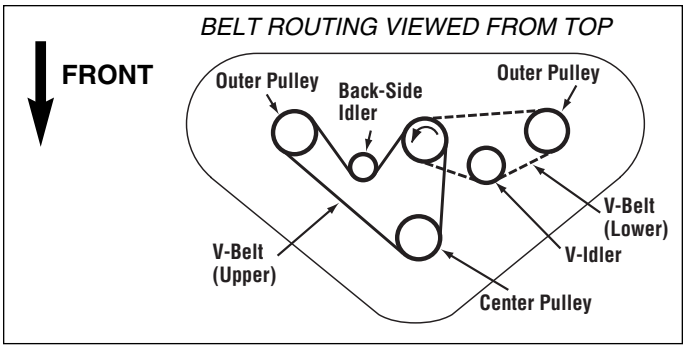

Figure 57. 48" Mower Belt Routing

48" Mower Drive Belt Replacement

NOTE: The left drive belt may be replaced without removing the right belt. To replace the right belt, the left belt must also be removed. The procedure below covers removal of both belts.

1. Remove the mower deck. See Mower Removal and Installation
2. Remove the screws securing both deck belt covers and remove the covers.
3. Using a spring puller or a small rope loop, release both idler arm tension springs (B, Figure 58).
4. Remove the left drive belt (F) from the arbor pulley.
5. Remove the right drive belt (E) from the arbor pulleys.
6. Twist the belt and slide it between the gear box and mower deck shell. If the belt will not fit, loosen the six gear box mounting screws (A, Figure 59) to allow the belt to fit between the gear box and mower housing.
7. Inspect all pulleys for wear or bearing damage.
8. Lubricate the idler arm pivots with multi-purpose lithium grease and check for free movement.
9. Install the new right drive belt as shown in the diagram in Figure 57.
10. Install the new left drive belt as shown in the diagram in Figure 57.
11. Reinstall and tighten the gear box mounting screws (A, Figure 59).
12. Install both idler tension springs (B).
13. Install both belt covers.
14. Install the mower deck and run under no-load for five minutes to break in the new belt.

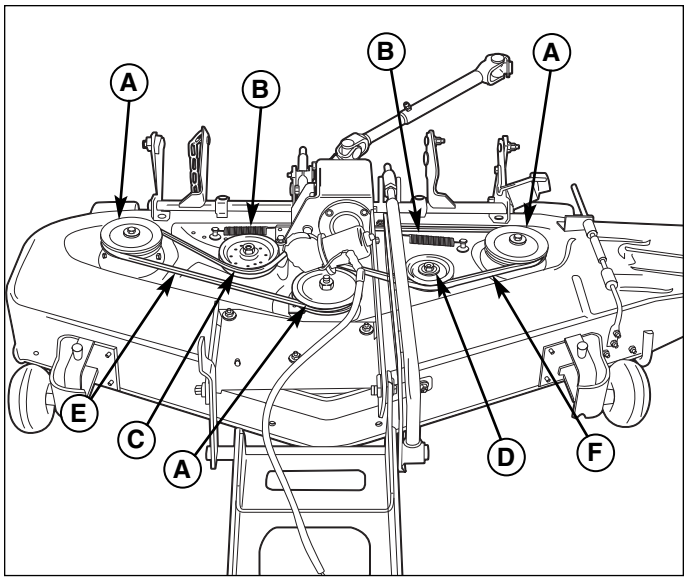

Figure 58. 48" Mower Deck - Covers Removed
A. Arbor Pulleys
B. Idler Arm Tension Springs
C. Back-Side Idlers Pulley
D. V-Idler Pulley
E. RH Drive Belt
F. LH Drive Belt

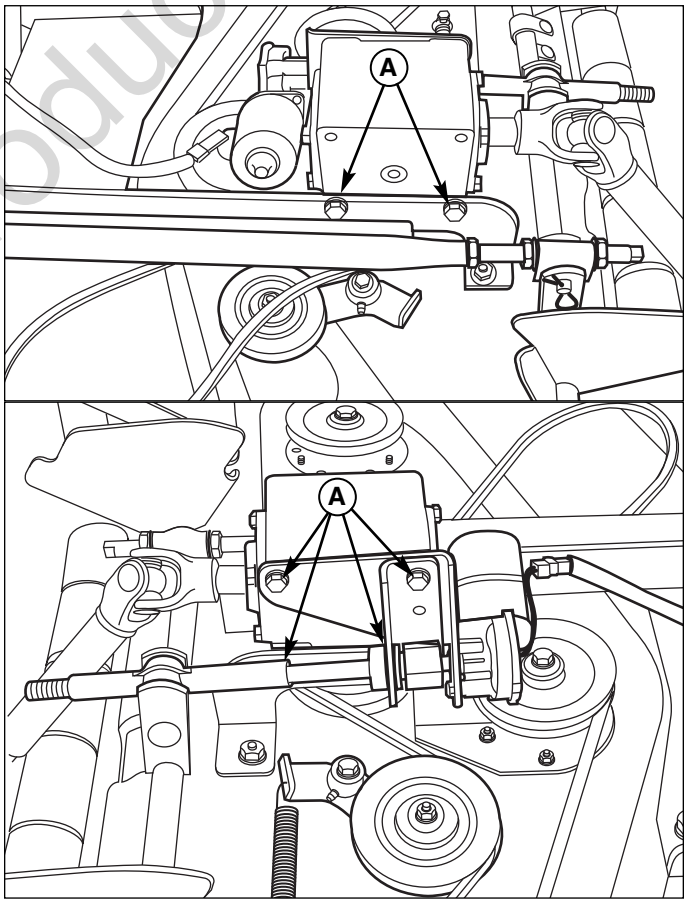

Figure 59. Gear Box Capscrews
A. Gear Box Capscrews

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Specifications

NOTE: Specifications are correct at time of printing and are subject to change without notice.
** Actual sustained equipment horsepower will likely be lower due to operating limitations and environmental factors.*

ENGINE:

27 HP* Kohler (Air Cooled)

Make	Kohler
Model	Command
Horsepower	27 @ 3600 rpm
Displacement	44 cu. in. (725cc)
Electrical System	12 Volt, 15 amp. Alternator, Battery: 500 CCA
Oil Capacity	2.1 qt. (2L)

27 HP* Kawasaki

Make	Kawasaki
Model	FD750D
Horsepower	27 @ 3600 rpm
Displacement	45.5 cu. in. (745cc)
Electrical System	12 Volt, 20 amp. Alternator, Battery: 500 CCA
Oil Capacity	2.1 qt. (2L)

27 HP* Briggs & Stratton

Make	Briggs & Stratton
Model	DM 950 D - Model 582447
Horsepower	27 @ 3600 rpm
Displacement	58.1 cu in (952cc)
Electrical System	12 Volt, 40 amp. Alternator, Battery: 500 CCA
Oil Capacity	3.2 qt. (3L)

CHASSIS:

Fuel Tank Cap.	5.5 gal (20,8L)
Rear Wheels:	
Turf Tires	Tire Size: 26x12-12 Inflation Pressure: 12-15 psi (,83-1,03 bar)
HD Field Tires	Tire Size: 26x12-12 Inflation Pressure: 10-12 psi (,69-,83 bar)
Front Wheels:	
Turf Tires	Tire Size: 18x8.5-8 Inflation Pressure.: 20-22 psi (1,38-1,52 bar)
HD Field Tires	Tire Size: 18x8.5-10 Inflation Pressure.: 20-22 psi (1,38-1,52 bar)

TRANSAXLE:

Make	Tuff Torq / Kanzaki
Type	K92 Integrated Hydrostatic Pump & Transaxle
Hydraulic Fluid	Type F Automatic Transmission Fluid
Capacity	2WD: 8 qt./7,6L, 4WD: 8.2 qt./7,8L, 4WD-540: 9.5 qt./9L
Speeds	Forward: 0-9.0 mph (0-14,4 kph)
@ 3400 rpm	Reverse: 0-5.5 mph (0-8,8 kph)
Continuous Torque Output	1200 ft-lbs (166 kg-m)
Drawbar Rating	1111 lbs (504 kg)
Maximum Weight on Axle	1800 lbs (816 kg)

FRONT AXLE (4WD):

Make	Shibaura
Lubrication	80W-90 Gear Lube
Capacity	1.6 qt. (1,5L)

DIMENSIONS:

Overall Length	81”
Overall Width	44.75” (2WD), 47.25” (4WD)
Height	51”
Weight (apx..)	
2WD Tractor Kohler	830 lbs. (376 kg)
2WD Tractor, Kawasaki	880 lbs. (399 kg)
2WD Tractor, B&S Diesel	981 lbs. (445 kg)
4WD Tractor Kohler	980 lbs. (445 kg)
4WD Tractor, Kawasaki	1030 lbs. (467 kg)
4WD Tractor, B&S Diesel	1131 lbs. (513 kg)
48” Mower Deck	222 lbs. (101 kg)
54” Mower Deck	230 lbs. (104 kg)
60” Mower Deck	300 lbs. (136 kg)

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Parts & Accessories

REPLACEMENT PARTS

Replacement parts are available from your authorized dealer. Always use genuine Simplicity Service Parts.

MAINTENANCE ITEMS

Many convenient and helpful service and maintenance items are available from you authorized dealer. Some of these items include:

Engine Oil
Touch-Up Paint
Grease Gun Kit
8 oz. Grease Tube
Tire Sealant
Degrimer/Degreaser
Gas Stabilizer

OPTIONAL ACCESSORIES

Snowthrower Cab
Snowthrower Attachments
Dozer/Snow Blade
Rear Wheel Weights
Tire Chains
Grass Catcher
Dump Cart
Gas Cans
Loader
R.O.P.S.
Rotary Broom
Rear Weight Carrier
Front Weight Carrier
Triple Bag Collector
Turbo Collector
Tiller

TECHNICAL MANUALS

Additional copies of this manual are available, as well as fully illustrated parts lists. These manuals show all of the product's components in exploded views (3D illustrations which show the relationship of parts and how they go together) as well as part numbers and quantities used. Important assembly notes and and torque values are also included.

Technical manuals can be downloaded from www.simplicitymfg.com

Model: _____

Mfg. No.: _____

Your Name: _____

Address: _____

City, State, Zip: _____

Visa/Mastercard No.: _____

Card Expiration Date: _____

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BRIGGS & STRATTON POWER PRODUCTS GROUP, L.L.C. OWNER WARRANTY POLICY

LIMITED WARRANTY

Briggs & Stratton Power Products Group, LLC will repair and/or replace, free of charge, any part(s) of the equipment that is defective in material or workmanship or both. Briggs & Stratton Corporation will repair and/or replace, free of charge, any part(s) of the Briggs and Stratton engine* (if equipped) that is defective in material or workmanship or both. Transportation charges on product submitted for repair or replacement under this warranty must be borne by purchaser. This warranty is effective for the time periods and subject to the conditions stated below. For warranty service, find the nearest Authorized Service Dealer using our dealer locator at www.BriggsandStratton.com.

There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from purchase or to the extent permitted by law. Liability for incidental or consequential damages are excluded to the extent exclusion is permitted by law.

Some states or countries do not allow limitations on how long an implied warranty lasts, and some states or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state or country to country.

WARRANTY PERIOD

Item	Consumer Use	Commercial Use:
Equipment	2 Years	2 Years
Engine*	2 Years	2 Years
Battery	1 Year	1 Year

The warranty period begins on the date of purchase by the first retail consumer or commercial end user, and continues for the period of time stated above. “Consumer use” means personal residential household use by a retail consumer. “Commercial use” means all other uses, including use for commercial, income producing or rental purposes. Once product has experienced commercial use, it shall thereafter be considered as commercial use for purposes of this warranty.

No warranty registration is necessary to obtain warranty on Briggs & Stratton products. Save your proof of purchase receipt. If you do not provide proof of the initial purchase date at the time warranty service is requested, the manufacturing date of the product will be used to determine warranty eligibility.

ABOUT YOUR WARRANTY

We welcome warranty repair and apologize to you for being inconvenienced. Warranty service is available only through servicing dealers authorized by Briggs & Stratton or BSPPG, LLC.

Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. This warranty only covers defects in materials or workmanship. It does not cover damage caused by improper use or abuse, improper maintenance or repair, normal wear and tear, or stale or unapproved fuel.

Improper Use and Abuse - The proper, intended use of this product is described in the Operator’s Manual. Using the product in a way not described in the Operator’s Manual or using the product after it has been damaged will void your warranty. Warranty is not allowed if the serial number on the product has been removed or the product has been altered or modified in any way, or if the product has evidence of abuse such as impact damage, or water/chemical corrosion damage.

Improper Maintenance or Repair - This product must be maintained according to the procedures and schedules provided in the Operator’s Manual, and serviced or repaired using genuine Briggs & Stratton parts. Damage caused by lack of maintenance or use of non-original parts is not covered by warranty.

Normal Wear - Like all mechanical devices, your unit is subject to wear even when properly maintained. This warranty does not cover repairs when normal use has exhausted the life of a part or the equipment. Maintenance and wear items such as filters, belts, cutting blades, and brake pads (engine brake pads are covered) are not covered by warranty due to wear characteristics alone, unless the cause is due to defects in material or workmanship.

Stale Fuel - In order to function correctly, this product requires fresh fuel that conforms to the criteria specified in the Operator’s Manual. Damage caused by stale fuel (carburetor leaks, clogged fuel tubes, sticking valves, etc) is not covered by warranty.

* Applies to Briggs and Stratton engines only. Warranty coverage of non-Briggs and Stratton engines is provided by the engine manufacturer.

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